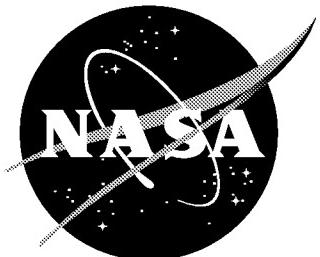


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Piloted Simulation Investigation of a Supersonic Transport Configuration (LaRC.4)

*E. Bruce Jackson, Debbie Martínez, and Stephen D. Derry
Langley Research Center, Hampton, Virginia*

September 1999

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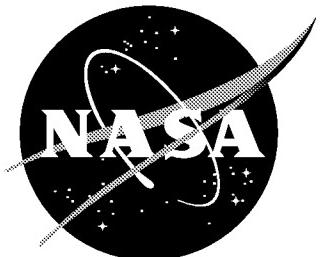
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Space Administration

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Abstract

This report contains a description of the test facilities and software utilized during a joint NASA/aerospace industry study of improved control laws and desired inceptor characteristics for a candidate supersonic transport aircraft design. Details concerning the characteristics of the simulation cockpit, image generator and display systems, and motion platform are described. Depictions of the various display formats are included. The test schedule, session log, and flight cards describing the maneuvers performed are included. A brief summary of highlights of the study is given. Modifications made to the industry-provided simulation model are described. This report is intended to serve as a reference document for industry researchers.

Introduction

A joint NASA/industry team has been examining the feasibility of producing and operating a profitable supersonic transport aircraft under sponsorship of the High-Speed Research (HSR) Program. This report describes one such study, an investigation by the Guidance and Flight Controls Integrated Technology Development Team, conducted in the spring of 1998 at NASA Langley Research Center (LaRC). This study utilized the Langley Visual/Motion Simulator (VMS) to develop control laws to mitigate the effect of structural modes on passenger ride and crew flying qualities. The study also looked at ways of quantifying the effect of varying lateral inceptor authority on flying qualities. This study was designated LaRC.4 and was the fourth experiment at LaRC under the HSR program.

The intent of this report is to serve as a reference for the industry investigators of the separate elements of the LaRC.4 study when reporting on specific results of those elements.

Abbreviations

ANSI	American National Standards Institute
CRT	cathode ray tube
DASE	dynamic aeroservoelastic
HSR	High-Speed Research
IMC	instrument meteorological conditions
LaRC	Langley Research Center
LaRC.4	The fourth in a series of planned HSR tests at Langley Research Center
SMC	structural mode control
SSL	Secure Sockets Layer
TCP/IP	Transfer Control Protocol/Internet Protocol
VMS	Visual/Motion Simulator
XVS	eXternal Vision System

Facility description

Host processor

The host processor used for the LaRC.4 experiment was a Convex 3840, running the vehicle model at a major frame time of 16 ms (62.5 Hz), with some components (actuators and dynamic aeroservoelastic models) running at higher frame rates (usually 5 times per major frame, or 3.2 ms [312.5 Hz]). Cockpit, motion, and visual input/output were performed at 32 ms (31.25 Hz).

Motion base and cueing algorithm

The motion base utilized in LaRC.4 was the Langley Visual/Motion Simulator (VMS), which was designed and manufactured by The Singer Company in 1972. It is depicted in figure 1. The VMS is a synergistic six-degree-of-freedom motion platform with the nominal amplitude, rate, and acceleration limits given in table 1.

The motion cueing algorithm utilized was a modification of normal VMS motion cues. Normal VMS motion cueing uses coordinated adaptive washout filters as described in references 1 and 2. The modification to these conven-

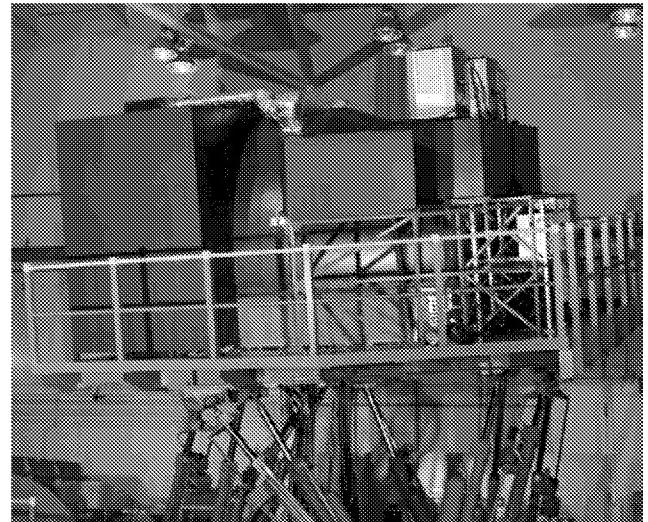


Figure 1. LaRC VMS exterior view.

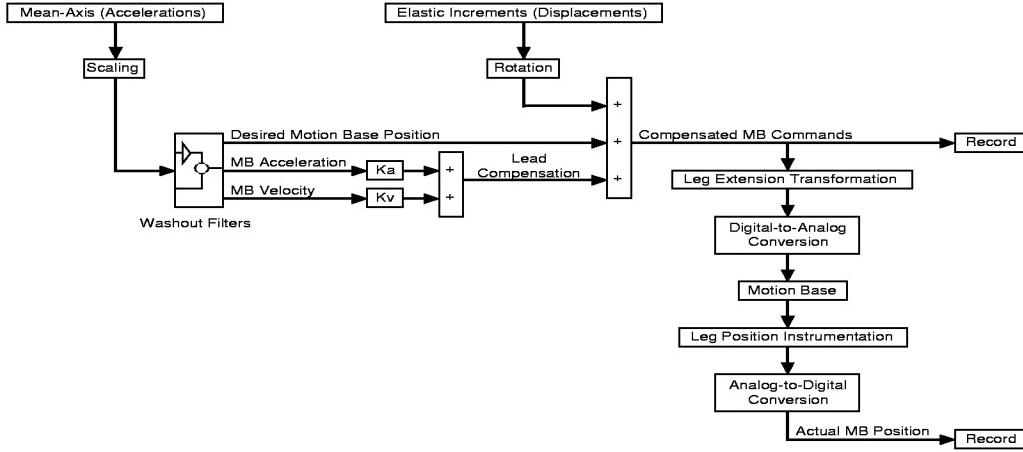


Figure 2. Motion cueing compensation for DASE.

Table 1. LaRC VMS Static Characteristics

Axis	Position Limits	Velocity Limits	Acceleration Limits
Surge	49 in. forward 48 in aft	± 24 in./sec	± 0.6 g
Sway	± 48 in.	± 24 in./sec	± 0.6 g
Heave	39 in. up 30 in. down	± 24 in./sec	± 0.8 g
Roll	± 22 deg	± 15 deg/sec	± 50 deg/sec ²
Pitch	30 deg nose up 20 deg nose down	± 15 deg/sec	± 50 deg/sec ²
Yaw	± 32 deg	± 15 deg/sec	± 50 deg/sec ²



Figure 3. LaRC VMS interior view.

tional motion cues was to take that portion of cockpit accelerations due to dynamic aeroservoelastic behavior and add them directly to the output of the washout filters to reduce phase lag in this portion of the motion cues as shown in figure 2. Appendix A contains plots of the motion base response in six axes of motion.

The effective time delay associated with motion cueing logic was 89 ± 16 milliseconds. This delay was determined in motion base tests (reference 3) and represents the average time from a discrete input to the host processor, commanding a step input in the heave axis, until motion was detected by on-board accelerometers. It included a one and one-half simulation cycle frame time (at 32 ms per frame) and 41 ms of motion system response. The time delay did not include dynamics of the simulated aircraft.

Cockpit layout

The interior of the VMS cockpit is a generic four-engine, two-seat transport class aircraft as shown in figure 3. Six head-down color CRT displays are provided, along with analog indicators for altitude and airspeed.

Two inceptors (control sticks) were provided: the left-side pilot station included a left-hand McFadden side-stick inceptor, and the right side pilot station included a center-stick inceptor. The two pilots shared a center aisle stand containing four throttles.

The length of the side-stick from pivot point to middle of the grip was 6.5 inches. The length of the center-stick from pivot point to middle of the grip was 30.5 inches.

Characteristics of these inceptors and throttles are given in tables 2 and 3 below. Force gradients are with respect to the middle of the stick grip. Bandwidth is estimated from the frequency that yielded 90 degree phase lag between commanded and actual displacement in a calibration test.

Table 2. VMS Inceptor Static Characteristics

Inceptor & Axis	Test Amp. (in.)	Band-width (rad/s)	Break-out (lbs.)	Force Gradient (lbs./in.)	Neutral Position (degrees)	Maximum Deflection (in.)
Side Stick Pitch	±0.16	32	1.4	11	9 fwd	±1.4
Side Stick Roll	±0.15	26	1.4	4 left 5 right	20 right	±1.4
Center Stick Pitch	±0.20	27	2	5.4 fwd 6.8 aft	0	±3.6
Center Stick Roll	±0.40	20	2	4.4	0	±3.6
Pedals Yaw	--	--	14	65	0	±2.8

Table 3. VMS Throttle Static Characteristics

Throttle (numbered from left to right)	Avg. Forward Friction (lbs.)	Avg. Aft Friction (lbs.)	Travel (inches)
1	3.7	4.5	8.6
2	4.9	5.3	8.6
3	5.6	7.3	8.6
4	3.7	4.3	8.6

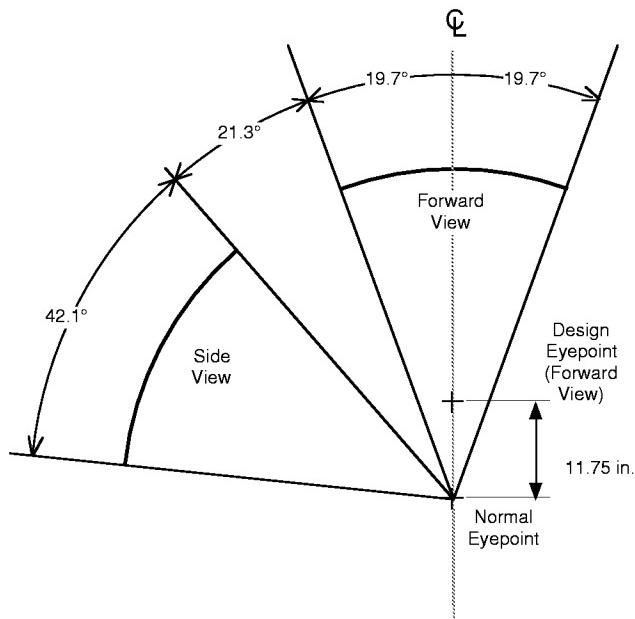


Figure 4. LaRC VMS Left-seat horizontal field-of-view. Right seat field-of-view same but reflected about centerline.

Out-the-window displays

Four mirror-beam-splitter-type displays were provided for out-the-window presentations, arranged with one display in front of each pilot, and one display on each side of the cockpit for a combined field-of-view for each pilot of approximately 24 degrees vertical by 103 degrees horizontal (including a vertical seam between the front and side display of 21 degrees) as shown in figure 4. These displays were based on XKD model 8000 monitors and each presented an collimated image of 1023 pixels by 944 scan lines in front of the design eyepoint.

Due to reuse of convex mirrors designed for another cab, the design eyepoint was located approximately 12 inches in front of the normal eyepoint as shown in figure 4. This results in minor magnification of the forward image, and a reduction in the exit pupil diameter - in effect, a portion of the forward image is masked by the outline of the mirror-beam-splitter at the normal eyepoint.

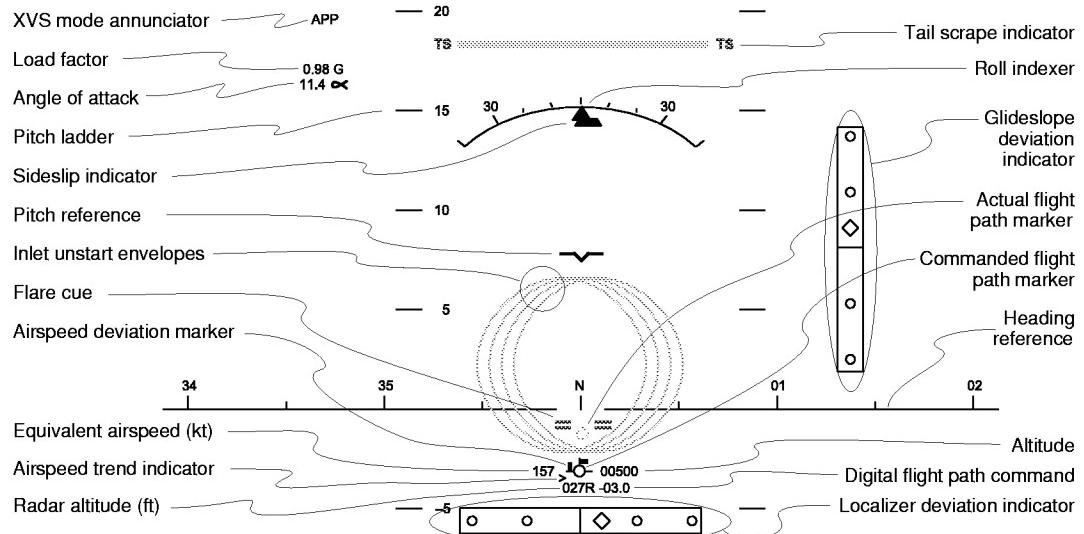
Image generator

The image generator used to provide out-the-window visual imagery was an Evans & Sutherland ESIG 3000 system. Terrain and culture data included a 200 nm by 200 nm area surrounding the Denver, Colorado International Airport. The database included geospecific photo texture within 20 nm of the airport. For the purposes of this research project, the altitude of the entire database was adjusted so that the threshold of the primary runway used (runway 35L) was set at mean sea level. The scene presented to the pilot was refreshed at 60 Hz.

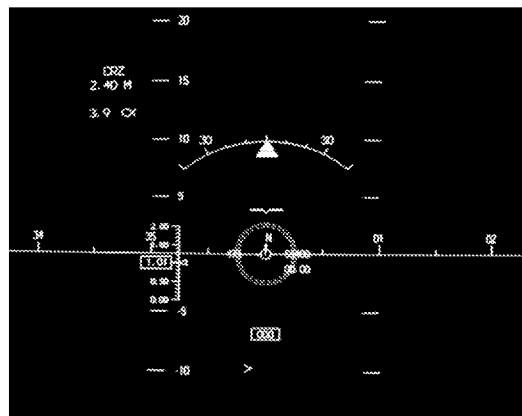
The effective time delay associated with visual cueing was determined by testing (reference 3) and analysis to be 108 ± 24 milliseconds. This represents the amount of time required from a change in input at the cockpit, through the simulation host, running at a 32 ms frame time, to the completion of the first visual field of the interlaced out-the-window display that reflected this change. The time delay did not include dynamics of the simulated aircraft.

XVS symbology

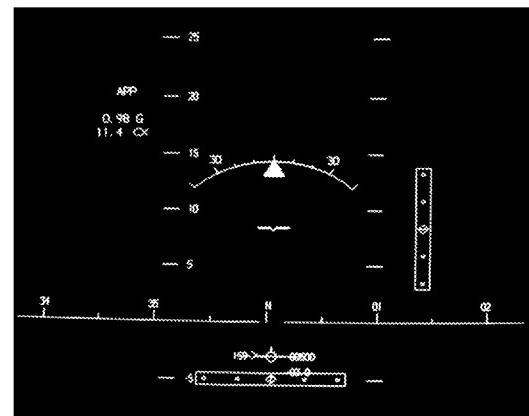
A representation of notional External Vision System (XVS) symbology was provided to the pilot. This representation changed depending upon flight task. The basic symbology set is contained in figure 5 along with photographs of the actual symbology with and without out-the-window imagery. The out-the-window imagery was usually present during testing, with the exception of simulated Instrument Meteorological Conditions (IMC) when the ground imagery was obscured by simulated low visibility and clouds.



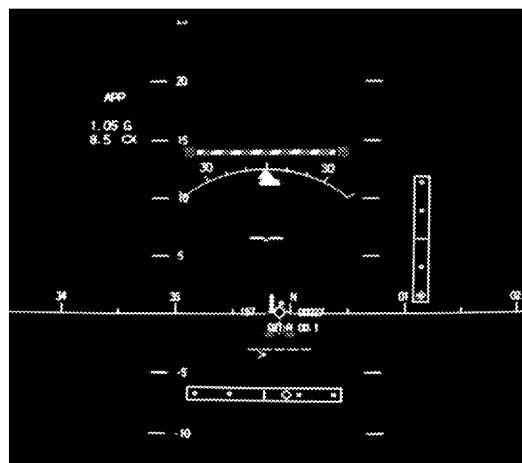
(a) Basic symbology set of XVS



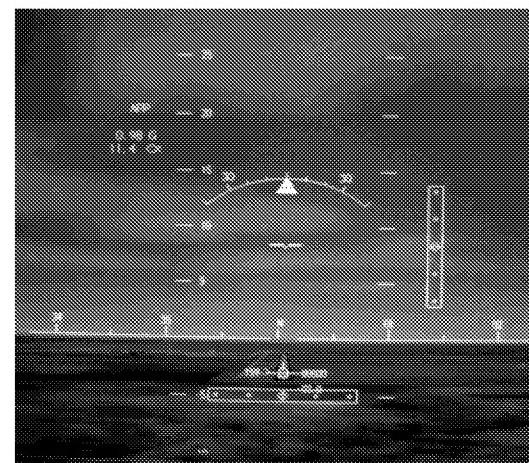
(b) XVS symbology as implemented in LaRC.4
(cruise conditions)



(c) XVS symbology as implemented in LaRC.4
(landing approach)



(c) XVS symbology as implemented in LaRC.4
(landing flare)



(d) Pilots' forward image with XVS symbology
(landing approach)

Figure 5. Forward field-of-view with overlaid XVS symbology.

Heads-down displays

Six 8" XYtron color cathode-ray tubes were mounted in the instrument panel of the VMS cockpit. These were used to present additional information to the flight crew, including a Primary Flight Display (figure 6), a Control Surface and Engine Display (figure 7) and a Navigation Display (figure 8). If required for the task, a Velocity-Altitude Display (figure 9) was available. The Pilot Not Flying was provided with a Trim Display (figure 10) to verify the proper simulation trim state and that cockpit controls were in the proper position prior to beginning each simulation run.

Model description

The mathematical description of the supersonic transport being investigated and much of the FORTRAN software used was produced by The Boeing Company. It was designated as Boeing Reference H, and was the fourth release of the simulation model (Cycle 4). Modifications received after the initial release of the Cycle 4 model brought the Boeing-supplied software to a revision level designated as C. Additional software such as support routines, equations of motion, and some elements of the structural mode control were written at NASA Langley.

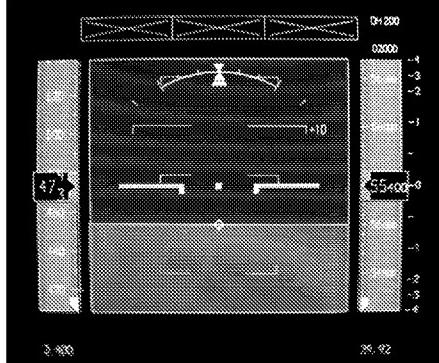


Figure 6. Primary Flight display.

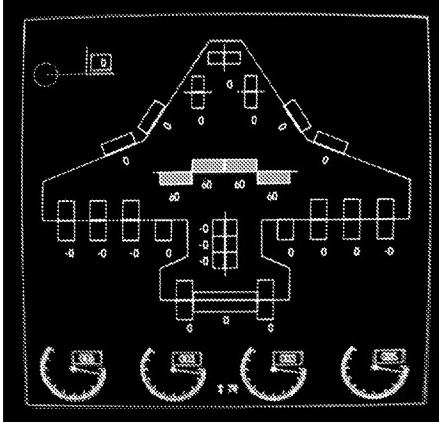


Figure 7. Control Surface and Engine display.

The math model of Reference H included aerodynamics, propulsion, landing gear, mass and inertia, sensor, and control law models. This model also included a representation of structural dynamics of the aircraft, including the coupling between the aerodynamics, the actuators, and the elasticity of the vehicle (called dynamic aeroservoelastic, or DASE, effects). The first 40 modes of structural dynamics (the lowest 20 modes in frequency in both the symmetric and asymmetric axes) were modeled. These effects were modeled using a technique described as the "P-transform" method (see reference 4). The number of modes of each axis included in the simulation could be set at run time by

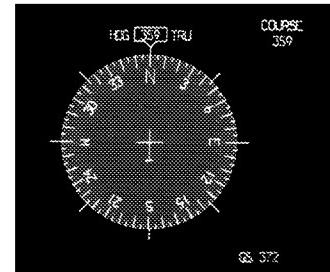


Figure 8. Navigation display.

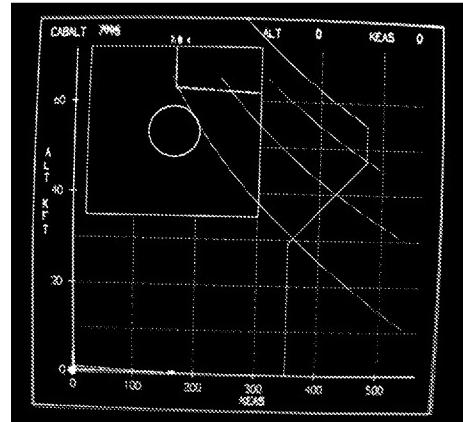


Figure 9. Velocity-Altitude display.

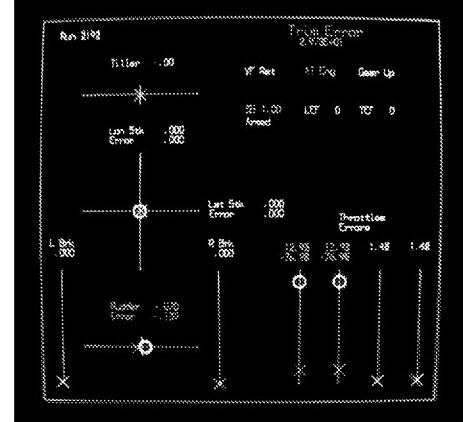


Figure 10. Simulation trim display.

the console operator, including having no modes active (resulting in a quasi-steady aeroelastic model with no dynamic structural effects).

Modifications of revision C

Additional modifications were made to the Boeing-supplied code beyond those contained in revision C. These modifications are described in Appendix B.

Control laws

Control laws for both maneuvering and structural mode control (SMC) were provided by industry researchers in the form of higher-level software designs. These control system designs were refined during the course of LaRC.4. The initial set of control laws were labeled version 0.23. Additional versions of the control laws were developed during LaRC.4, up to version 0.44. The result of these modifications led to the control laws used in a later experiment. Use of a higher-level software description of the control laws allowed for rapid modification in the computer-aided control design environment and rapid incorporation of the changed design in the simulation. However, a characteristic of the code generator used in this process led to excessive propagation delays for the higher-frequency SMC dynamic components, requiring hand-coding of the SMC portion of the longitudinal control system.

Simulation schedule

The schedule of pilot and engineer participation in the LaRC.4 study is shown in Appendix C.

Session and run Logs

A summary of sessions conducted in the LaRC.4 simulation study is given in Appendix D. The complete run log can be found in Appendix E.

Significant results

Lateral inceptor parametric study refined

Development of a set of design requirements for a next-generation supersonic transport aircraft is one of the goals of the guidance and flight controls element of the HSR program. This study provided an opportunity to continue to develop these requirements for the lateral-motion characteristics of the pilot's control inceptor, in this case, a center-stick configuration. In an attempt to determine the desired relationship between the force gradient (pounds of force per degree of travel) of the lateral-axis control inceptor and the initial roll-axis motion response of the cockpit (p-dot), this

relationship was varied parametrically and the pilot was asked to perform two different maneuvers: a supersonic small-amplitude heading change, a subsonic small-amplitude heading change, and an instrument approach to landing with discrete lateral gusts.

The LaRC.4 study was used by the industry researchers to develop and refine these maneuvers and the matrix of parametric variations, as well as to develop a task performance scoring algorithm for the small-amplitude heading changes.

Rapid control law incorporation

Since part of the mission of LaRC.4 was to provide a maneuver control law (non-DASE) and structural mode control (SMC) law development opportunity, the use of a commercial-off-the-shelf computer-aided control law design program was supported. This control law design tool included a code generator that would convert the control design (represented on the designer's screen as a block diagram) into ANSI-C source, which was then compiled and linked into the real-time simulation program. This capability allowed the control designers to develop and refine candidate control laws in a computer environment that was useful and familiar, and allowed rapid incorporation of these control laws in the real-time simulation (on the order of 15 minutes).

P-transform method validated

LaRC.4 successfully validated the use of P-transform modeling of structural dynamics in a real-time simulation. Some initial errors in the implementation model were discovered and corrected in the course of LaRC.4 which improved the fidelity of the DASE P-transform formulation.

SMC implementation discrepancy uncovered

The auto-code process worked well for the rigid-body control law development and refinement portion of LaRC.4, but some difficulties arose during the SMC development effort. In general, SMC laws tended to become unstable when operated in the real-time simulation even though they performed well in the computer-aided design program. Stability could be regained in the simulation by reducing the overall SMC forward-path gain by a factor of five.

Eventually, the cause of the disparity was determined to be inherent in the structure of the machine-generated control law software. The SMC control laws were developed in the continuous (analog) domain. The nature of the generated code was a set of subroutines (in object-oriented terminology, methods) that allowed the simulation executive to obtain a set of state derivatives associated with the internal states of the control law for a given values of input variables and state variables. The executive would then integrate the control law state variables, using the obtained state deriva-

tives, to obtain updated state variables. Another machine-generated method was then called to obtain a new set of output variables associated with the set of input variables and updated state variables.

Although this parallel integration method introduced consecutive one-cycle propagation delays for dynamic elements (such as filters and lags) placed in series, the propagation delay was of little consequence for rigid-body control laws in which (1) only a few low-order dynamic elements were placed in series or (2) the iteration rate of the control laws was two orders of magnitude (or more) higher than the highest frequency of the simulated system. However, in the case of structural mode control, the use of higher-frequency dynamic elements of higher-order, placed in series, made this propagation delay sufficiently long that significant phase delay occurred and instabilities resulted.

The proof of this delay as the cause of the instability was demonstrated by reducing the time step of the simulation model to much slower than real-time; when the simulation was run with a smaller time step, the SMC control law worked at the nominal gain settings.

A workable solution to the problem was the manual conversion of a candidate longitudinal SMC control law into software, in which the state derivatives were integrated for each dynamic element before being passed along to the next dynamic element in the control law.

Demonstration of structural mode control

Following the correction to the SMC implementation, a successful set of structural mode control laws, working in concert with the rigid body control laws, was demonstrated with a pilot, with motion cueing on, for series of landing approaches. During this session, the SMC control laws were turned off, and then on, with significant improvement in both handling qualities and quality of ride noted by the research pilot. This was the first successful demonstration of SMC laws in the HSR program with a pilot-in-the-loop.

Web-based access to results

At the conclusion of each run, time-history data of selected parameters was stored on a computer disk in a digital format. This disk was shared by two computers - the real-time host processor, which wrote the data on the disk, and another computer that was running a World-Wide Web file server application. This Web server included the capability of providing secure, encrypted transfer of the time-history data using SSL protocols layered on top of the conventional TCP/IP Internet transfer protocols.

By accessing a Web page on the secure server, an authorized remote user could browse through an up-to-date copy

of the run log (also stored electronically at the end of each session) and select individual runs of interest, using a variety of selection criteria. The runs of interest could then be downloaded securely over the Web to the user's remote computer for further analysis.

The selection criteria included: run number, pilot name, inceptor type, test type or flight card, control law configuration, motion cueing on or off, and DASE effects on or off.

The data format used was the ASC2 format of Dryden's GetData utility program (see reference 5).

Another utility program written by one of the authors, *tranth*, was available for downloading as well. This program allowed the conversion (on UNIX computers) of ASC2 format to other data formats (including Matlab binary and tab-separated values formats) for ease of import into various analysis programs.

Remote participation in simulation

LaRC.4 marked the first use of teleconferencing in LaRC simulations. During the evolution of this study, industry researchers requested follow-on simulator sessions after they had returned to their home offices on the West Coast. In one instance, an SMC designer wanted to get a pilot's opinion of a change made in the SMC laws; in another instance, handling qualities engineers wanted to have a pilot assess a change made in the small-amplitude heading change maneuver. In both cases, the researchers were connected via telephone to the cockpit intercom. Although the visual scene was not presented to the remote researchers, they were able to converse with the pilot and obtain a description of the behavior and characteristics of the simulated aircraft verbally, as well as ask questions and clarifications of the pilot.

In all cases, time-history data from the simulation runs were available immediately after the event.

This capability was useful in that it extended the evaluation time available to the researchers following the end of their on-site visit to Langley.

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Appendix A: Langley VMS Motion Cueing System Response Plots

The dynamic characteristics of the Langley Visual Motion Simulator were measured at the conclusion of LaRC.4 by driving the motion base, with and without dynamic compensation. To excite the motion platform within the linear response range of the system, a sine wave position command with the following amplitudes (+/- from zero) was used as the input in each axis. Table A-1 below gives the amplitude of excitation in each axis at each test frequency.

Table A-1. Motion Response Input Sine Wave Amplitudes

Axis	Frequency, rad/sec (Hz)												
	0.1 (0.016)	0.15 (0.024)	0.25 (0.040)	0.4 (0.064)	0.7 (0.111)	1.0 (0.16)	1.5 (0.24)	2.5 (0.40)	3.14 (0.5)	4.0 (0.64)	6.28 (1.0)	9.0 (1.43)	12.6 (2.0)
Roll, Pitch, Yaw (deg)						1.2					1.0	0.8	0.5
Surge, Sway, Heave (inch)							1.0						0.25

The output of the motion base was measured from leg position sensors and converted back to equivalent motion base position. Figure A-1 below shows a schematic representation of the test setup.

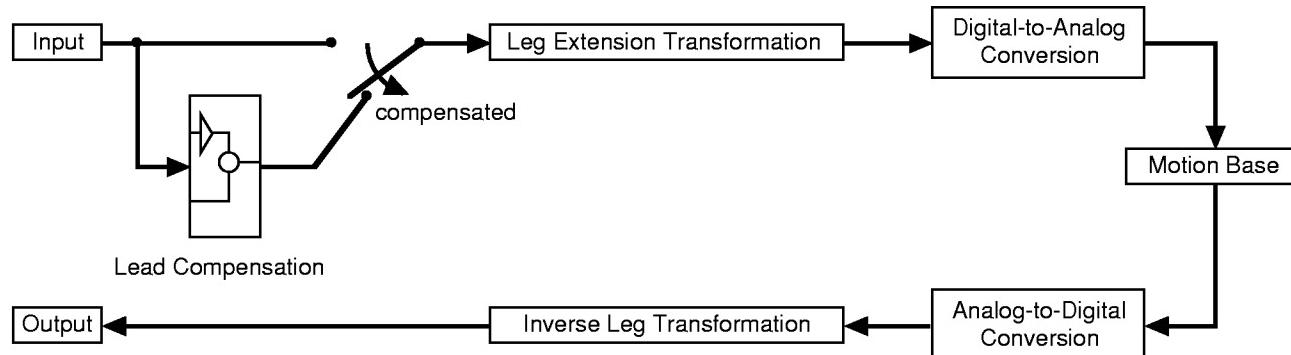


Figure A-1. Method of obtaining motion base responses.

The figures on the next three pages show the Bode response characteristics for this experiment for each axis of the VMS motion platform. The time delay depicted on each of the plots is derived by dividing the phase angle, in degrees, by the respective frequency, scaled to degrees per second. This is a separate measurement of the motion system time delay, which is frequency dependent and includes motion system dynamic characteristics, from the motion system transport delay measured in reference 3.

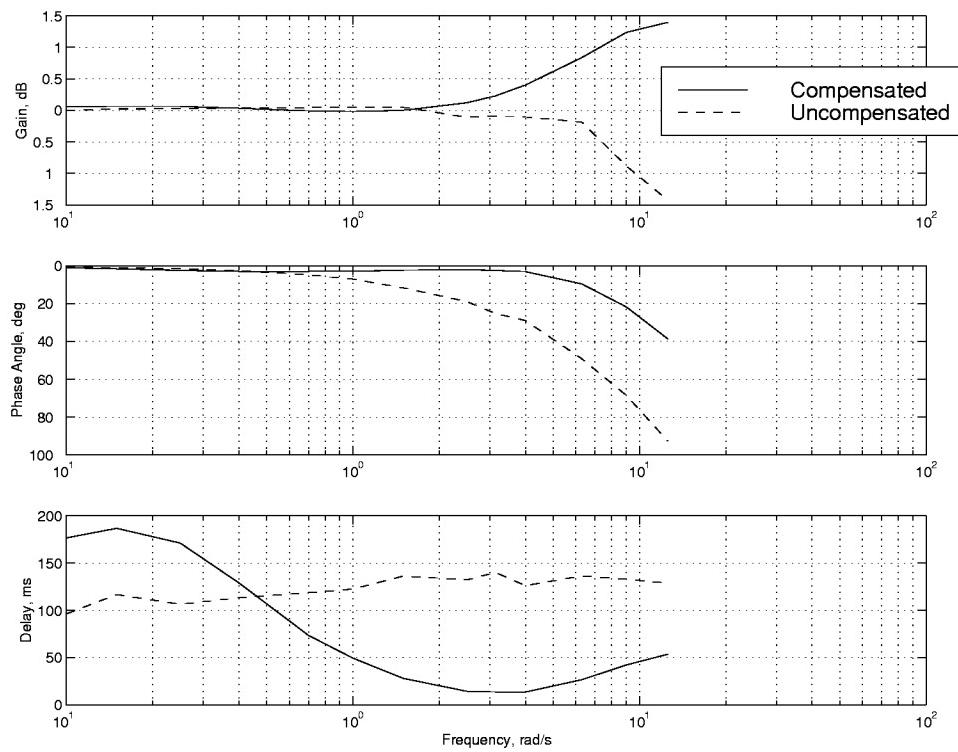


Figure A-2. Roll (ϕ) axis frequency response and equivalent time delay.

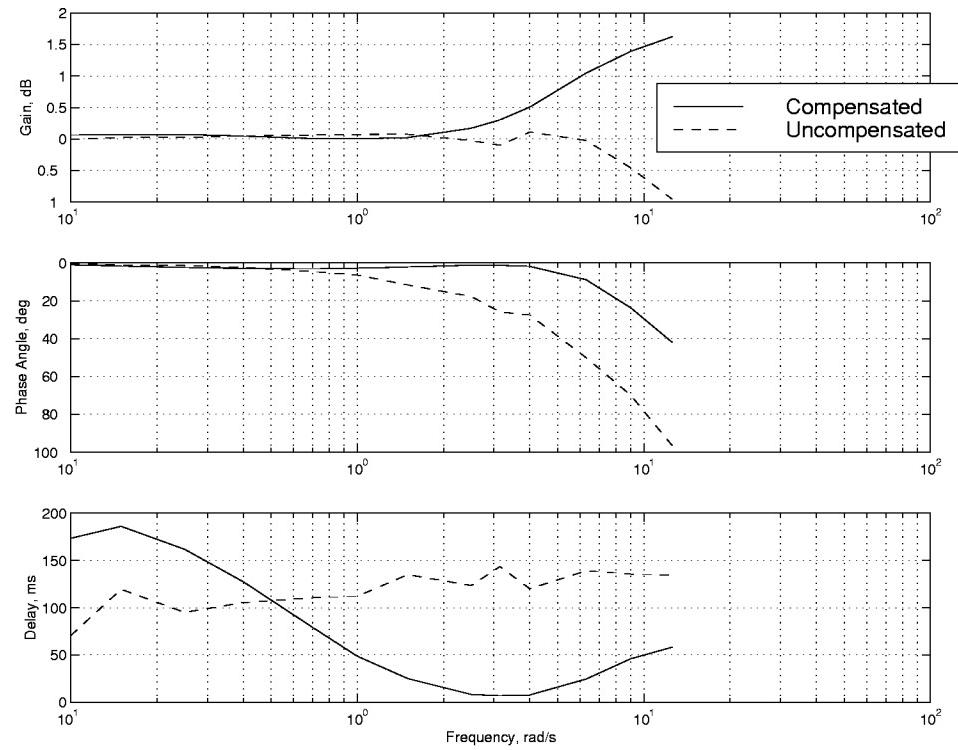


Figure A-3. Pitch (θ) axis frequency response and equivalent time delay.

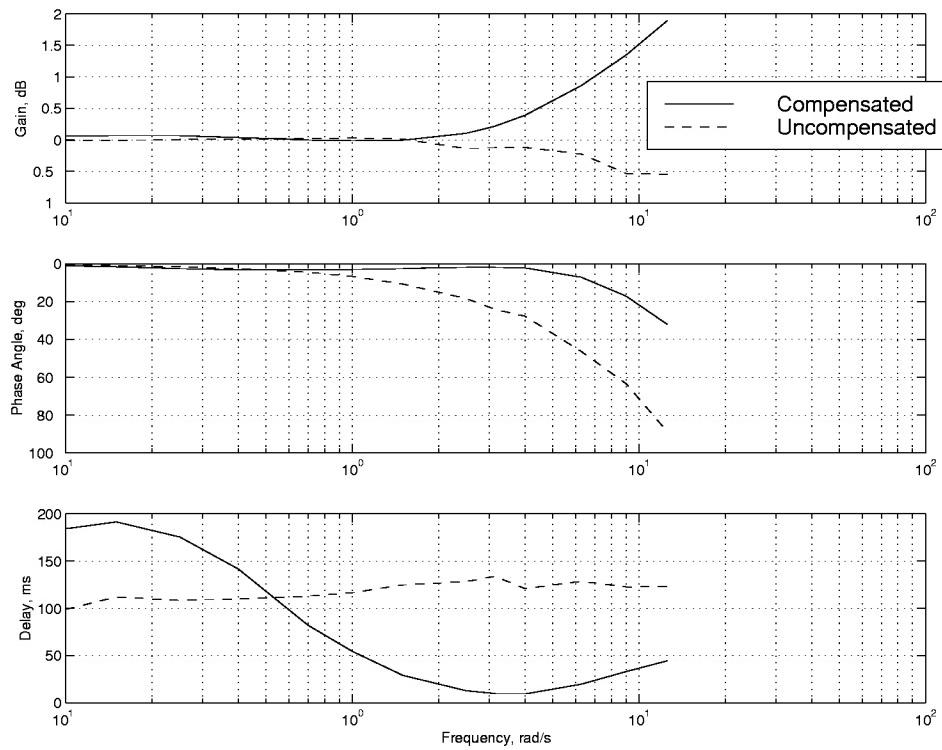


Figure A-4. Yaw axis (ψ) frequency response and equivalent time delay.

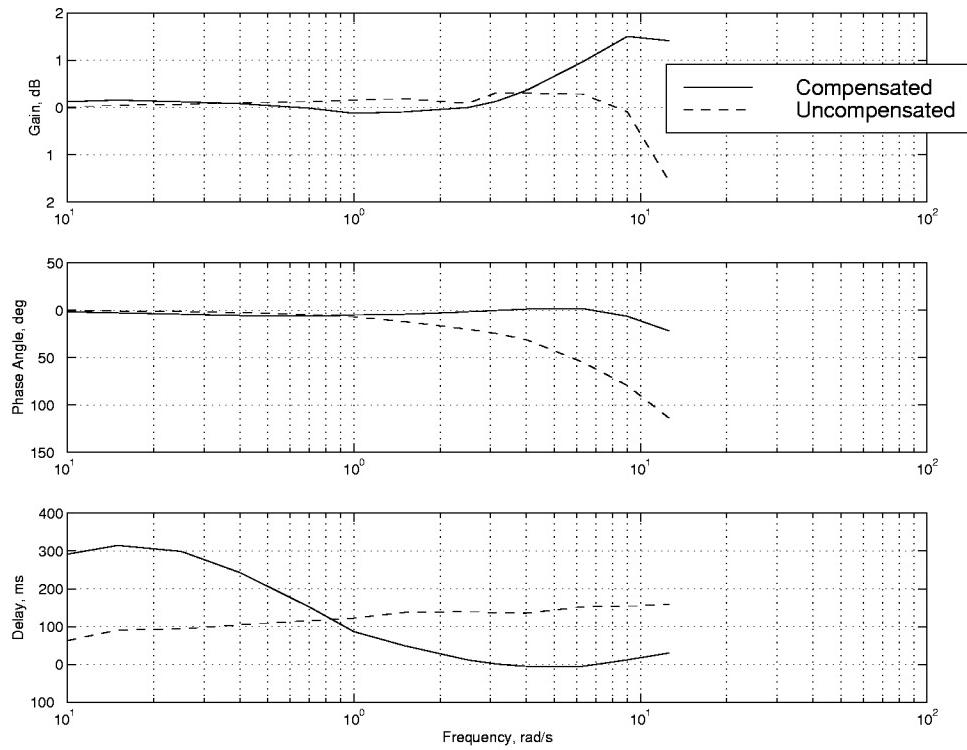


Figure A-5. Surge (X) axis frequency response and equivalent time delay.

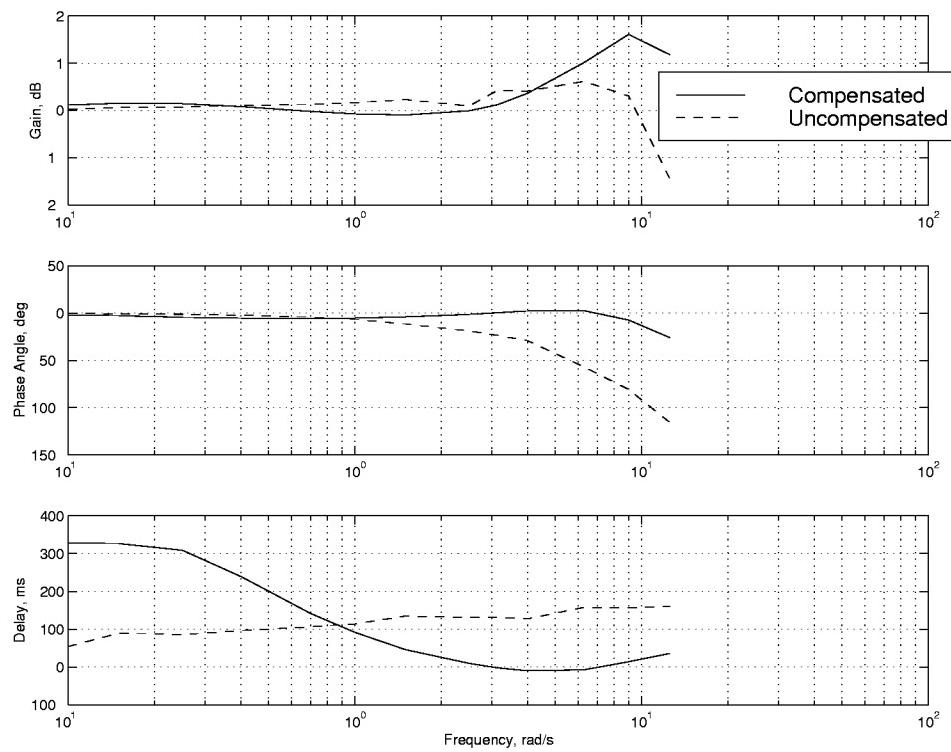


Figure A-6. Sway (Y) axis frequency response and equivalent time delay.

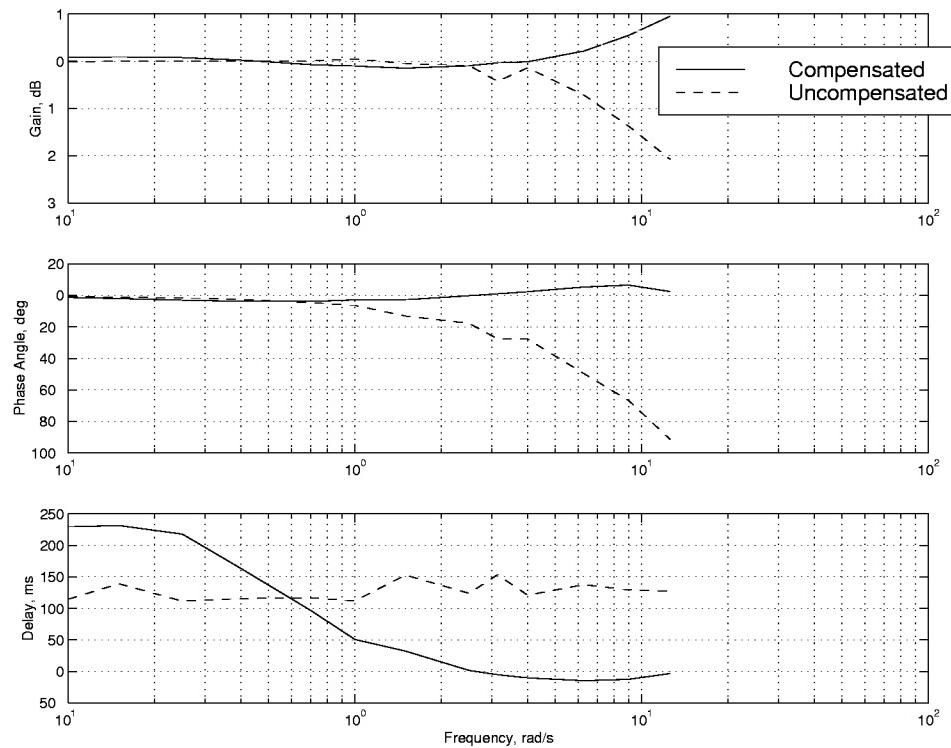


Figure A-7. Heave (Z) axis frequency response and equivalent time delay.

Appendix B: Modifications to Simulation Model subsequent to revision C

The following discussion lists the changes applied to the Boeing-supplied implementation of the Cycle 4 Ref. H simulation model. Some of the changes are enhancements which support the use of the vehicle model for certain tasks (such as the zeroing of the engine inlet flow angularity at subsonic Mach numbers, which supports cross-wind takeoff tasks). Other changes are corrections to the implementation as originally delivered or subsequently revised (such as the actuator parameter changes), or corrections to local interface routines which are necessary to work with Cycle 4 (such as the total pressure calculation for the engine model).

This list was prepared by Gus Taylor of the Unisys Corp.

Control and hinge moment models

The Revision C versions of *ctrl_mixer.f*, *flaps.f* and *ftc_blk.f* are used instead of the initially delivered versions. (SMR 98-15)

Capabilities are added to the 3rd order actuator to bypass initialization in reset (bypass by default), to select the number of subframes (10 by default), and to select between Euler and AB2 integration (AB2 by default). Affects *actuator_3rd.f*. (SMRs 98-10 and 98-17)

In the 3rd order actuator, position limits (*LIM1* and *LIM2*) are applied to *ACT_POS*, and the rate limit (*RL*) is applied to *ACT_RATE* and *CNTL_DOT*. Affects *actuator_3rd.f* (SMR 98-10)

The number of actuators used by ride control vanes is corrected (four rather than three). Affects *act_blk.f*. (DR #42)

Structural mode control command values are added to the rudder segment #1 command (CMND (4)), the trailing edge flap segment #2 command (CMND (7)) and the trailing edge flap #7 command (CMND (13)), if the corresponding flags are true, before limiting. The values applied to the two flaps are negatives of one another. Affects *ctrl_mixer.f*. (cycle 4 control system)

The sign of the limiting value of *LATRC_C* is reversed: *DTE7_C* – *CLIM(2, 9)* rather than *CLIM(2, 9)* – *DTE7_C*. Affects *ctrl_mixer.f*. (DR #43)

THE FOLLOWING CHANGES ARE NOT KNOWN TO BE NECESSARY FOR THE MODEL TO FUNCTION CORRECTLY

Module *ctrl_advan.f* is not used. Control systems brought forward from cycle 3 are used instead. Affects *ctrl_exec.f*. (initial baseline)

Initializations from *hmoment_blk.f* are performed outside of the hinge moment model. The only delivered hinge moment module used in the real-time simulation is *hmoment.f*.

The hinge moment model is called from subroutine *ACT_EXEC*, and is called on every other pass only. Affects *act_exec.f*. (initial baseline, SMR 98-10 and DR #40)

Aerodynamic hinge moments (HMAER (i)) are updated in subroutine *ACTUATOR3* as well as in subroutine *HMOIMENT*. Affects code in *act_exec.f*, *actuator_3rd.f* and *hmoment.f*. (SMR 98-10)

Selection among multiple sets of 3rd order actuator parameters (fast, mid and baseline) is enabled. Affects *act_blk.f*, *act_exec.f* and *actuator_3rd.f* (see attached code extracts). (SMR 98-12)

Gearing is adjusted for the scaling of control inputs in the real-time program. Affects code in *ctrl_io.f*. (initial baseline)

Calculations of symmetric and antisymmetric components of control surface motions for use by the LaRC DASE model are added. (The LaRC DASE model was brought forward from cycle 3, and is distinct from the p-transform DASE model that was part of the delivered cycle 4 code.) Affects *act_exec.f*. (initial baseline)

Engine/propulsion model

Updated versions of *pro_blk_tab.f*, *pro_in_buff.f*, *pro_inlet_cont.f* and *pro_model.f*, received 2/17/98, are used in place of those initially delivered.

The model requires that the total pressure (PT_AR) input to it be calculated as follows regardless of Mach:

```
PT_AR = PRESS*(1.0 + 0.2*MACH_AR**2)**3.5
```

where `PRESS` is the ambient static pressure. This calculation produces the free-stream total pressure. Previously, the real-time simulation had used this calculation for the total pressure behind a normal shock.

The percent net thrust (`PCFN1` through `PCFN4`) calculations are protected against division by zero. Affects `engine_out.f`. (initial baseline)

Variable `THRSTC_0` is not calculated in the engine model. Affects `engine_out.f`. (initial baseline)

Variables `INIC_PRO_R` and `COMP_PRO_R` are used in place of `IMODEN`. Affects `pro_in_buf.f`. (initial baseline)

Variables `TRM_THRUST(i)` are not set as in the delivered code, but instead are set equal to the corresponding `THRCMD_FCS(i)` value on every pass in reset. Affects `engine_in.f`. (DR #7 and SMR 98-02)

The low-speed engine inlet flow angularity calculation is modified by setting and applying gain `XMWASH`. Affects code in `pro_inlet_cont.f` (see attached code extracts). (SMR 98-06)

THE FOLLOWING CHANGE IS NOT KNOWN TO BE NECESSARY FOR THE MODEL TO FUNCTION CORRECTLY

Calculations of the combined upwash and sidewash angles for each engine (`INLANG(i)`), and of the limited inlet upwash/sidewash tolerance for each engine (`UNSTTOL(i)`) are added. Affects code in `pro_inlet_cont.f` (see attached code extracts). (initial baseline and DR #4)

P-transform DASE model

Code from the Revision B version of `ase_flex.f` and the Revision C version of `ase_interp.f` is used instead of that from the versions initially delivered. (revision b and SMR 98-15)

The calculation of `AZ_DATA(i)` is reversed in sign, so that the sign convention of the `AZ_DATA` values is +down, consistent with the sign convention of `AZBI_IR` and with the simulation data base document. Affects code in `ase_out.f`. (initial baseline)

Signs are reversed in assigning gust velocities to U vector elements:

$$\begin{aligned} \text{U_SYM}(22) &= -WG \\ \text{and} \\ \text{U_ASYM}(26) &= -VG \end{aligned}$$

This is necessary because the sign conventions assumed by the DASE model are +downward and +left-to-right. Affects `ase_in.f`. (DR #25 and SMR 98-24)

Inconsistent hardcoded input filename lengths are eliminated, and the capability is added to read 15-character columns as well as 16-character columns from input files. Affects `ase_read_ab.f` and `ase_read_c.f`. (SMR 98-15)

The gust velocity indices are corrected and parameterized. In the symmetric case, the index is `NC_SYM*3 + 1 = 22`, and in the antisymmetric case it is `NC_ASYM*3 + 1 = 25`. Affects code in `ase_flex.f`. (DR #30)

In the DASE stabilizer doublet check case, it appears necessary to set `LONGELV` false, rather than true as in the delivered `dase_long.dpt` file, in order to match the delivered `DELEV1` plot (which is constant zero).

THE FOLLOWING CHANGES ARE NOT KNOWN TO BE NECESSARY FOR THE MODEL TO FUNCTION CORRECTLY

The capability is added to force `POINT_(A)SYM` to a selected value, regardless of the flight condition. When ride control vane and chin fin input data are in use, this permits a known set of input data to be selected regardless of how the data have been copied to fill in flight conditions outside of the ride control vane/chin fin domain. By default, the capability is turned on and the `POINT_(A)SYM` values are forced to seven. Affects code in `ase_interp.f`. (SMR 98-19)

Actuator-provided values are used for control surface rates and accelerations, rather than computing rates and accelerations from deflections by backward difference. Gains defaulting to one are applied to the accelerations. Affects code in `ase_in.f` and `ase_flex.f`. (SMRs 98-06 and 98-18)

Gust acceleration terms are included in the DASE modal acceleration (`ZETAD_(A)SYM(i)`) calculations; gains defaulting to zero are applied to these accelerations. Affects code in `ase_in.f` and `ase_flex.f`. (SMR 98-17)

The capability is added to inactivate (specifically, to residualize) all symmetric DASE modes above a selected number, and similarly for antisymmetric modes. (The capability to residualize modes by means of the `NSEL_(A)SYM(i)` flags, contained in the delivered code, is retained as well.) Affects code in `ase_in.f`, `ase_flex.f` and `ase_out.f`. (SMRs 98-09, 98-24 and DR #28)

Increments to mean-axis accelerations (`UBID_IR`, `VBID_IR`, etc.) due to DASE effects are calculated in trim in the same way as in operate, i.e., without using the `ABFLEX_(A)SYM` matrices. In trim, the increments are not added into the accelerations, but the sum of their squares is added into the trim error. Similarly, DASE modal accelerations (`ZETAD_(A)SYM(i)`) are calculated in trim and the sum of their squares is added into the trim error. DASE modal deflections in trim are calculated directly from “A” and “B” matrices using equation 10.43 in the simulation data base document (p. 10-15), i.e., the `ABFLEX_(A)SYM` matrices are no longer used for this purpose either. Affects code in `ase_exec.f`, `ase_flex.f` and `ase_interp.f`. (SMR 98-23)

Calculations of mean-axis load factors at the c.g. and of mean-axis external accelerations (`NXBI_IR`, `NYBI_IR`, `NZBI_IR`, `AXBI_IR`, `AYBI_IR` and `AZBI_IR`) are performed outside of the DASE model. Affects code in `ase_out.f`. (initial baseline)

Gear/ground contact model

Updating of stroke deflections (`GP(i)`) is inhibited if the `zz` element of the cosine matrix (`ZZ_ER`, limited as `RZZ` in subroutine `GEAR`) is not positive. This avoids the calculation of large erroneous deflections when bank exceeds 90 deg. Affects `gear.f`. (DR #34)

THE FOLLOWING CHANGES ARE NOT KNOWN TO BE NECESSARY FOR THE MODEL TO FUNCTION CORRECTLY

Many features are brought forward from earlier real-time cycles and incorporated into the gear model (see attached gear features). Affects code in `gear.f`, `gear_io.f` and `grd_cntct.f`. (initial baseline)

Mass model

The calculation of `DYCG_MD` is reversed in sign, so that the calculations using `DYCG_MD` in `formom.f`, `gear.f`, and `grd_cntct.f` will be correct. Affects code in `mass_io.f`. (initial baseline)

It is not known whether the fuel model is functional, because the model is not executed in the real-time simulation. No delivered code is affected; execution of the model is inhibited by setting variable `PT_ANALYSIS` to `true`.

Aero model

Variables `CLTR` and `CMTR` are looked up only once, from low speed/high speed tables. In the delivered code, they are looked up twice: in subroutine `AERO_TAB` (from low speed/high speed tables) and again in subroutine `AERO_SPEC` (from a special table). Affects `aero_spec.f`. (initial baseline)

Variables `CLTGER_SZ` and `CLTGER_EZ` are looked up from the `CLTGER` low-speed table (`cltger_ls.fda`). In the delivered code, they are looked up from a special table (`cltger.fda`) which is identical to `cltger_ls.fda`. The same is true of `CMTGER_SZ` and `CMTGER_EZ`. Affects `aero_spec.f`. (initial baseline)

Equations-of-motion model

The only executable module from this model used in the real-time simulation is `formom.f`. Code brought forward from earlier cycles is used in place of all other executable modules. Analysis indicates that the code in use is equivalent to the delivered model for the flat-earth case, i.e., the case for which the delivered model is valid.

Atmosphere/gust model

The delivered atmosphere/gust model is not used.

Code Extracts

Listing D-1. Calculation and use of variable XMWASH in *pro_inlet_cont.f*

```

C PROCESS pro_inlet_cont *
C IF (sim_mode_pro_r .GE. 4) THEN
C   xmwash = (mach_ar - 1.0) / 0.2
C   xmwash = min (max(xmwash,0.0), 1.0)
C

C
C IF (inboarddf_pro_l) THEN *
C   PROCESS ic_local_ib
C   Inlet Local Conditions - Inboard
C

C
C
C & angu_icm_pro_l(i_eng_pro_l) = (q138(i_eng_pro_l) +
C &   (q139(i_eng_pro_l) * angbaf_icf_pro_l(i_eng_pro_l)))
C &   * xmwash

C
C
C & angs_icm_pro_l(i_eng_pro_l) = (q135(i_eng_pro_l) +
C &   (q137(i_eng_pro_l) * angbaf_icf_pro_l(i_eng_pro_l)))
C &   * xmwash

C
C END ic_local_ib *
C
C ENDIF
C IF (outboarddf_pro_l) THEN
C   PROCESS ic_local_ob
C   Inlet Local Conditions - Outboard
C

C
C
C & angu_icm_pro_l(i_eng_pro_l) = (q125(i_eng_pro_l) +
C &   (q126(i_eng_pro_l) * angbaf_icf_pro_l(i_eng_pro_l)))
C &   * xmwash

C
C
C & angs_icm_pro_l(i_eng_pro_l) = (q122(i_eng_pro_l) +
C &   (angbaf_icf_pro_l(i_eng_pro_l) * q124(i_eng_pro_l)))
C &   * xmwash

C
C END ic_local_ob *
C
C ENDIF

```

Listing D-2. Calculation of variables INLANG(i) and UNSTTOL(i) in *pro_inlet_cont.f*:

```

.
.
.

C _____ *                                1.4.1.9.8
C          PROCESS ust_margin_2d
C          Inlet Unstart Margin Calculation
C _____ *

.
.

unsttol(i_eng_pro_1) = q121(i_eng_pro_1)
usmargex_imf_pro_1(i_eng_pro_1) = (q117(i_eng_pro_1) .GT.
&           q118(i_eng_pro_1)) .AND. q119(i_eng_pro_1)
C _____ *                                1.4.1.9.8
C          END ust_margin_2d
C _____ *

.
.

C _____ *                                1.4.1.4.8
C          PROCESS in_ust_margin
C          Inlet Unstart Margin Calculation
C _____ *

.
.

unsttol(i_eng_pro_1) = q079(i_eng_pro_1)
usmargex_imf_pro_1(i_eng_pro_1) = (q075(i_eng_pro_1) .GT.
&           q076(i_eng_pro_1)) .AND. q077(i_eng_pro_1)
C _____ *                                1.4.1.4.8
C          END in_ust_margin
C _____ *

.
.

inlang(i_eng_pro_1) = q117(i_eng_pro_1)

1000 CONTINUE                                ! end for loop
C _____ *                                1.4.1
C          END pro_inlet_cont
C _____ *

```

Listing D-3. Changes in *act_exec.f* for multiple parameter sets:

```

.
.

j = act_sel(i)
call actuator3(cntl(i),cmnd(i),cntl_dot(i),cntl_ddot(i),
               kk3(j,i),hmaer(i),hmact(i),chmd(i), chmdd(i), chmact(i),
               cchmact(i), hmpd(i),laap3(j,i),
               nact3(j,i),kvact3(j,i),clim(1,i),clim(2,i),rl3(j,i),psupply,
.
.
.
```

```

.     pact(i), xv(i), qv(i), qf(i), fl(i), flp(i), kp3(j,i),
.     c_t3(j,i), k_eqv3(j,i), k_str_i(j,i), i_h13(j,i), blowdown,
.     torque(i), act_rate(i), act_pos(i))

```

Listing D-4. Changes in *actuator_3rd.f* for multiple parameter sets:

```
SUBROUTINE ACTUATOR3(CNTL,CNTL_CMD,CNTL_DOT,CNTL_DDOT,KK,HMAER,
    HMACT,CHMD,CHMDD,CHMACT,CCHMACT,HMPD,LAAP,
    NA,KV,LIM1,LIM2,RL,PS,PA,XVL,QV,QF,FL,FLP,
    KP,C_T,K_EQV,K_STR_I,I_HL,BDOWN,TORQUE,
    ACT_RATE,ACT_POS)
```

Thereafter:

Input parameter laap is used in place of the product la*ap.

The calculation of variable `k_str` is omitted, and input parameter `k_str_i` is used in its place.

Listing D-5. Changes in *act_blk.f* for multiple parameter sets:

```

.
.

DATA act_sel / 24*1 /

.
.

DATA rl3 / 25. , 25. , 0. , 25. , ! Stabilizer
          50. , 50. , 90. , 50. , ! Left Hand Side Elevator #1
          50. , 50. , 90. , 50. , ! Right Hand Side Elevator #2
          50. , 50. , 90. , 50. , ! Rudder Panel #1 (lower)
          50. , 50. , 0. , 50. , ! Rudder Panel #2 (middle)
          50. , 50. , 0. , 50. , ! Rudder Panel #3 (upper)
          90. , 90. , 90. , 90. , ! Trailing edge flaperon #1
          90. , 90. , 90. , 90. , ! Trailing edge flaperon #2
          90. , 90. , 90. , 90. , ! Trailing edge flaperon #3
          15. , 15. , 90. , 15. , ! Trailing edge flap #4
          15. , 15. , 90. , 15. , ! Trailing edge flap #5
          90. , 90. , 90. , 90. , ! Trailing edge flaperon #6
          90. , 90. , 90. , 90. , ! Trailing edge flaperon #7
          90. , 90. , 90. , 90. , ! Trailing edge flaperon #8
          15. , 15. , 0. , 15. , ! Leading edge flap #1
          15. , 15. , 0. , 15. , ! Leading edge flap #2
          15. , 15. , 0. , 15. , ! Leading edge flap #3
          15. , 15. , 0. , 15. , ! Leading edge flap #4
          60. , 60. , 0. , 60. , ! Spoiler Slot Deflector #1
          60. , 60. , 0. , 60. , ! Spoiler Slot Deflector #2
          60. , 60. , 0. , 60. , ! Spoiler Slot Deflector #3
          60. , 60. , 0. , 60. , ! Spoiler Slot Deflector #4
          100. , 90. , 90. , 90. , ! Canard
          100. , 90. , 90. , 90. / ! Chin Vane

.
.

DATA nact3/ 4 , 4 , 0 , 4 ,

```

```

      .          .          .          .
      3 , 3 , 4 , 3 ,
      3 , 3 , 4 , 3 ,
      3 , 3 , 3 , 3 ,
      3 , 3 , 0 , 3 ,
      2 , 2 , 0 , 2 ,
      2 , 2 , 2 , 2 ,
      2 , 2 , 2 , 2 ,
      2 , 2 , 2 , 2 ,
      2 , 2 , 3 , 2 ,
      2 , 2 , 3 , 2 ,
      2 , 2 , 2 , 2 ,
      2 , 2 , 2 , 2 ,
      2 , 2 , 2 , 2 ,
      6 , 6 , 0 , 6 ,
      6 , 6 , 0 , 6 ,
      6 , 6 , 0 , 6 ,
      6 , 6 , 0 , 6 ,
      2 , 2 , 0 , 2 ,
      2 , 2 , 0 , 2 ,
      2 , 2 , 0 , 2 ,
      2 , 2 , 0 , 2 ,
      4 , 4 , 3 , 4 ,
      2 , 2 , 2 , 2 /
      .
      .
      .
      DATA laap3/8.4220e+02,1684.2 , 0.0 , 1684.2 ,
      7.8952e+01, 631.2 , 103.56, 631.2 ,
      7.8952e+01, 631.2 , 103.56, 631.2 ,
      8.6328e+01, 86.3 , 24.34, 86.3 ,
      3.4726e+01, 34.7 , 0.0 , 34.7 ,
      1.9971e+01, 20.0 , 0.0 , 20.0 ,
      1.6800e+01, 252.0 , 85.35, 252.0 ,
      1.4001e+02, 560.0 , 172.9 , 560.0 ,
      2.0009e+02,1200.0 , 292.5 , 1200.0 ,
      7.4520e+01, 74.5 , 342.7 , 74.5 ,
      7.4520e+01, 74.5 , 342.7 , 74.5 ,
      2.0009e+02,1200.0 , 292.5 , 1200.0 ,
      1.4001e+02, 560.0 , 172.9 , 560.0 ,
      1.6800e+01, 252.0 , 85.35, 252.0 ,
      5.7933e+01, 57.93, 0.0 , 57.93,
      3.8640e+01, 38.64, 0.0 , 38.64,
      3.8640e+01, 38.64, 0.0 , 38.64,
      5.7933e+01, 57.93, 0.0 , 57.93,
      1.5200e+01, 15.2 , 0.0 , 15.2 ,
      7.2000e+00, 7.2 , 0.0 , 7.2 ,
      7.2000e+00, 7.2 , 0.0 , 7.2 ,
      1.5200e+01, 15.2 , 0.0 , 15.2 ,
      1.0000e+00, 1301.3, 1301.3, 1301.3 ,
      1.0000e+00, 90.3 , 90.3 , 90.3 /
      .
      .
      .
      DATA k_str_i / 2.0956e-09, 2.24e-19, 0.0, 2.24e-19,
      5.0828e-08, 51.62e-19, 10.91e-19, 51.62e-19,
      5.0828e-08, 51.62e-19, 10.91e-19, 51.62e-19,
      2.8730e-07, 287.3e-19, 46.58e-19, 287.3e-19,
      5.0326e-07,509.29e-19, 0.0, 509.29e-19,
      1.0199e-06,1019.9e-19, 0.0, 1019.9e-19,
      1.2769e-07,127.32e-19, 13.29e-19, 127.32e-19,
      6.4354e-08, 64.35e-19, 6.7e-19, 64.35e-19,
      3.6544e-08, 36.38e-19, 3.82e-19, 36.38e-19,
      2.1417e-08, 2.1417e-8, 3.36e-19, 0.0,
      2.1417e-08, 2.1417e-8, 3.36e-19, 0.0,
      3.6544e-08, 36.38e-19, 3.82e-19, 36.38e-19,
      6.4354e-08, 64.35e-19, 6.7e-19, 64.35e-19,
```



```

DATA kvact3/ 236.16 , 500.0 , 0. , 500.0 ,
          44.26 , 360.0 , 307.5 , 360.0 ,
          44.26 , 360.0 , 307.5 , 360.0 ,
          48.41 , 48.41 , 72.60 , 48.41 ,
          19.46 , 20.00 , 0. , 20.00 ,
          11.22 , 11.22 , 0. , 11.22 ,
          16.96 , 262.5 , 247.65 , 262.5 ,
          141.32 , 580.0 , 500.50 , 580.0 ,
          201.89 , 1230.0 , 843.75 , 1230.0 ,
          12.54 , 12.53 , 989.00 , 12.53 ,
          12.54 , 12.53 , 989.00 , 12.53 ,
          201.89 , 1230.0 , 843.75 , 1230.0 ,
          141.32 , 580.0 , 500.50 , 580.0 ,
          16.96 , 262.5 , 247.65 , 262.5 ,
          9.76 , 9.76 , 0. , 9.76 ,
          6.51 , 6.51 , 0. , 6.51 ,
          6.51 , 6.51 , 0. , 6.51 ,
          9.76 , 9.76 , 0. , 9.76 ,
          10.23 , 10.23 , 0. , 10.23 ,
          4.85 , 4.85 , 0. , 4.85 ,
          4.85 , 4.85 , 0. , 4.85 ,
          10.23 , 10.23 , 0. , 10.23 ,
          .0000 , 390.0 , 390.0 , 390.0 ,
          .0000 , 268.75 , 268.75 , 268.75

```

```

DATA   k_eqv3/ 36.4550e7 , 34.1e7 , 0. , 34.1e7
      1.5030e7 , 1.48e7 , 7.0e7 , 1.48e7
      1.5030e7 , 1.48e7 , 7.0e7 , 1.48e7
      .2659e7 , .2659e7 , 1.64e7 , .2659e7
      .1518e7 , .15e7 , 0. , .15e7
      .0749e7 , .0749e7 , 0. , .0749e7
      .5983e7 , .60e7 , 5.75e7 , .60e7
      1.1871e7 , 1.1871e7 , 11.4e7 , 1.1871e7
      2.0905e7 , 2.1000e7 , 20.0e7 , 2.1000e7
      3.5670e7 , 3.5670e7 , 22.75e7 , 3.5670e7

```

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3.5670e7 , 3.5670e7 , 22.75e7 , 3.5670e7 ,
2.0905e7 , 2.1000e7 , 20.0e7 , 2.1000e7 ,
1.1871e7 , 1.1871e7 , 11.4e7 , 1.1871e7 ,
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.3166e7 , .3166e7 , 0. , .3166e7 ,
.5432e7 , .5432e7 , 0. , .5432e7 ,
.0099e7 , .0099e7 , 0. , .0099e7 ,
.0000 , 8.75e7 , 8.75e7 , 8.75e7 ,
.0000 , 6.0e7 , 6.0e7 , 6.0e7 /

```



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DATA i_h13/ 35644.24e3 , 35644.20e3 , 0. , 35644.24e3 ,
1469.52e3 , 1469.52e3 , 1469.52e3 , 1469.52e3 ,
1469.52e3 , 1469.52e3 , 1469.52e3 , 1469.52e3 ,
259.98e3 , 259.98e3 , 259.98e3 , 259.98e3 ,
148.38e3 , 148.38e3 , 0. , 148.38e3 ,
72.32e3 , 72.32e3 , 0. , 72.32e3 ,
585.02e3 , 585.02e3 , 585.02e3 , 585.02e3 ,
1160.65e3 , 1160.65e3 , 1160.65e3 , 1160.65e3 ,
2044.02e3 , 2044.02e3 , 2044.02e3 , 2044.02e3 ,
3487.60e3 , 3487.60e3 , 3487.60e3 , 3487.60e3 ,
3487.60e3 , 3487.60e3 , 3487.60e3 , 3487.60e3 ,
2044.02e3 , 2044.02e3 , 2044.02e3 , 2044.02e3 ,
1160.65e3 , 1160.65e3 , 1160.65e3 , 1160.65e3 ,
585.02e3 , 585.02e3 , 585.02e3 , 585.02e3 ,
531.15e3 , 531.15e3 , 0. , 531.15e3 ,
309.53e3 , 309.53e3 , 0. , 309.53e3 ,
309.53e3 , 309.53e3 , 0. , 309.53e3 ,
531.15e3 , 531.15e3 , 0. , 531.15e3 ,
9.67e3 , 9.67e3 , 0. , 9.67e3 ,
.0000 , 1380.00e3 , 1380.00e3 , 1380.00e3 ,
.0000 , 630.00e3 , 630.00e3 , 630.00e3 /

```

Cycle 3 features brought forward into the Cycle 4 gear/ground contact model

Antiskid braking

Runway roughness model

Capability to select between different strut spring models

Calculation of gear altitudes

Calculation of projected tailscape pitch angle

Nosewheel steering features:

A tiller capability is provided.

The gain STRP is found by interpolation in reset just as in operate, i.e., there is no special reset value

Variable RUDPEDP_CP is assumed to be already normalized, and no trim value is provided for, i.e., variables PED_GAIN and DG_TR are not used.

Brake features:

Variables RBPED and LBPED are set either to the cab input or to the trim value, not to the sum, and are

assumed to be already normalized.

RBPED, LBPED and BPED are scaled rather than being limited.

Side force computation features:

DELTAU and DELTAY are calculated (not zeroized) in reset.

Past values:

FYGG(i) values are zeroized in reset.

PUG(i), PVG(i) and FXGG(i) values are initialized in reset only if ON_GROUND_TR is false, in which case they are set to the last values held when ON_GROUND_TR was true.

Initializations differing from Cycle 4:

AUTBDZ	= 4
AMUBIC	= 0.016
AUTBRK	= .FALSE.
BRAKE_GEARING(1)	= 2
FLAG	= 0
GDEF(1)	= 0.0
GNBPED	= 0.0
NWSG2	= 15.0
NWSGS2	= 1000.0
NWSRLM	= 60.0
RLGU	= 9.0

autobrake deceleration rate = 1.8 (DECFS (DECEL) in Boeing code)

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Appendix C: Simulation Schedule

Wk	Dates (1998)	Purpose	Engineers		Pilots	
0	3/30 - 4/3	LaRC checkout	Jackson		Rivers	
1	4/6 - 4/10	FCS checkout	Rowhani	Williams	Rivers	Norman
2	4/13 - 4/17		Kraft			
3	4/10 - 4/24	SMC checkout	Borland	Rowhani Goldthorpe		
4	4/27 - 5/1	DASE verification, Roll Sensitivity preparations		Coleman	Hardy	
5	5/4 - 5/8	von Klein		Rivers	Verstynen	
6	5/11 - 5/15	DASE validation				
7	5/18 - 5/22	Roll Sensitivity Study	Rossitto Shweyk		Rivers	Norman
8	5/26 - 5/29					
9	6/1 - 6/5	SMC checkout	Goldthorpe Nagaraja Rowhani Barrett	Borland		

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Appendix D: Session Log

Session Number	Run Date	Session Start	Session Finish	Elapsed Time	Start Run	End Run	Run Count	Engineer or Pilot	Notes
1	4/8	8:30	11:00	2:30	76	111	36	Rowhani	
2	4/8	14:26	14:54	0:28	113	116	4	Williams	
3	4/8	16:29	17:00	0:31	120	130	11	Rowhani	
4	4/9	8:24	10:17	1:53	136	172	37	Rowhani	
5	4/9	12:11	12:52	0:41	178	191	14	Norman	
6	4/9	13:41	14:00	0:19	193	202	10	Williams	
7	4/9	16:15	16:26	0:11	213	218	6	Williams	
8	4/10	8:23	9:01	0:38	224	233	10	Rowhani	
9	4/10	9:01	10:05	1:04	234	253	20	Norman	
10	4/10	10:08	10:10	0:02	254	255	2	Raney	
11	4/10	10:11	11:00	0:49	256	260	5	Williams	
12	4/10	13:22	14:26	1:04	263	277	15	Rivers	
13	4/10	14:47	16:07	1:20	278	286	9	Rivers	
14	4/13	9:10	10:00	0:50	301	307	7	Kraft	
15	4/13	15:31	16:02	0:31	344	356	13	Williams	
16	4/13	16:16	16:55	0:39	357	368	12	Kraft	
17	4/14	9:17	10:06	0:49	371	388	18	Kraft	
18	4/14	10:41	10:54	0:13	389	393	5	Williams	
19	4/14	14:35	15:24	0:49	396	409	14	Kraft	
20	4/14	16:00	16:22	0:21	410	415	6	Williams	
21	4/15	10:43	11:00	0:17	432	436	5	Rivers	
22	4/15	14:30	15:22	0:52	440	450	11	Rivers	
23	4/16	10:27	11:06	0:39	470	480	11	Rivers	
24	4/16	15:07	16:03	0:56	489	501	13	Rivers	
25	4/17	9:28	11:04	1:36	507	537	31	Rivers	
26	4/17	14:34	14:40	0:06	539	540	2	Kraft	
27	4/17	14:48	15:43	0:55	541	556	16	Norman	
28	4/21	9:04	9:35	0:31	604	621	18	Borland	
29	4/21	15:18	17:11	1:53	625	635	11	Borland	
30	4/22	10:56	11:30	0:34	673	676	4	Goldthorpe	
31	4/22	12:59	14:19	1:20	679	697	19	Henderson	
32	4/22	14:33	14:40	0:07	698	701	4	Borland	
33	4/22	15:28	15:32	0:04	708	710	3	Henderson	got lat/dir SMC working
34	4/22	16:14	16:43	0:29	718	739	22	Borland	got long SMC working
35	4/22	16:45	17:00	0:14	730	746	17	Henderson	removed notch and bandpass filters; both axes under SMC
36	4/23	8:40	8:59	0:18	767	774	8	Henderson	
37	4/23	9:38	10:12	0:34	781	793	13	Rowhani	potential gamma checkout
38	4/23	10:14	11:00	0:45	794	804	11	Henderson	Lat/Dir SMC
39	4/23	15:34	15:46	0:12	816	819	4	Goldthorpe	Lat/Dir SMC, FCS v0.36
40	4/23	15:46	16:40	0:53	820	839	20	Borland	Checkcases
41	4/27	10:14	11:30	1:16	874	875	2	Coleman	prot.
42	4/27	14:39	16:20	1:40	879	904	26	Coleman	env. prot; rolls
43	4/29	16:54	16:59	0:05	938	941	4	Hardy	Flare cue tuning
44	4/30	10:53	11:05	0:11	949	949	1	Hardy	Gamma tuning; roll snubbing
45	4/30	14:10	16:04	1:54	954	978	25	Borland	SMC checkout motion
46	4/30	16:16	16:50	0:34	979	986	8	Hardy	DASE demo with Gordon
47	4/30	16:51	16:58	0:06	987	988	2	Derry	Demo to Julie Mikula
48	5/1	9:00	9:24	0:24	996	1008	13	Borland	New B1_.13 checkout
49	5/1	9:30	9:50	0:20	1009	1013	5	Bailey	Center stick sweeps
50	5/1	9:58	10:59	1:00	1014	1039	26	Hardy	Flare cue tuning for Ames.
51	5/1	14:34	15:02	0:28	1043	1051	9	Borland	SMC checkout
52	5/1	15:34	16:34	1:00	1054	1081	28	Hardy	Flare bias, and A/T transients
53	5/4	9:00	10:45	1:45	1087	1097	11	von Klein	roll hold checkout
54	5/5	10:07	10:59	0:52	1112	1137	26	von Klein	roll hold checkout

Session Log (cont'd)

Session Number	Run Date	Session Start	Session Finish	Elapsed Time	Start Run	End Run	Run Count	Engineer or Pilot	Notes
55	5/6	8:45	9:50	1:05	1140	1155	16	von Klein	roll control laws
56	5/4	9:00	10:45	1:45	1087	1097	11	von Klein	roll hold checkout
57	5/5	10:07	10:59	0:52	1112	1137	26	von Klein	roll hold checkout
58	5/6	8:45	9:50	1:05	1140	1155	16	von Klein	roll control laws
59	5/7	8:30	11:00	2:30	1168	1186	19	von Klein	roll control laws
60	5/8	8:30	10:49	2:19	1195	1219	25	Norman	checkout of roll gains and stick sensitivity
61	5/14	14:45	15:28	0:43	1267	1275	9	Norman	check rudder RL; used conference call with T. vonK
62	5/18	10:00	11:00	1:00	1293	1296	4	Rossito	sweep of controls
63	5/18	15:35	17:00	1:24	1296	1322	27	Shweyk	
64	5/19	9:40	10:42	1:02	1330	1341	12	Rossitto	
65	5/20	9:28	11:02	1:34	1356	1379	24	Norman	
66	5/20	14:52	15:19	0:27	1385	1389	5	Rossitto	
67	5/21	10:30	11:00	0:30	1402	1405	4	Rossitto	
68	5/21	14:42	17:00	2:18	1408	1436	29	Norman	begin roll cards
69	5/22	9:16	11:02	1:46	1439	1468	30	Norman	finished landing card
70	5/22	14:46	16:50	2:03	1477	1505	29	Norman	supersonic heading cards
71	5/26	10:22	11:00	0:38	1512	1518	7	Rivers	begin roll cards
72	5/26	15:19	17:03	1:44	1522	1538	17	Rivers	continued landing cards
73	5/27	9:07	11:01	1:54	1541	1560	20	Verstynen	subsonic roll
74	5/27	15:17	17:15	1:57	1564	1583	20	Rivers	finish landing cards
75	5/28	8:55	11:02	2:07	1587	1600	14	Rivers	supersonic roll cards
76	5/28	15:00	16:25	1:24	1603	1617	15	Verstynen	
77	5/28	16:28	17:05	0:36	1618	1624	7	Rivers	finish supersonic cards
78	5/29	8:47	8:55	0:08	1628	1636	9	Otto	roll check cases
79	6/1	8:58	11:30	2:32	1650	1695	46	Goldthorpe	rudder pulses
80	6/1	12:52	16:16	3:24	1700	1730	31	Goldthorpe	VMS checkout of lat/dir SMC
81	6/2	8:30	10:00	1:30	1731	1748	18	Goldthorpe	Gain margin investigations
82	6/2	9:44	11:00	1:16	1751	1785	35	Borland	long smc checkout
83	6/2	11:15	14:41	3:26	1788	1830	43	Norman	Flew with Steve G with lat/dir on motion
84	6/2	14:52	16:04	1:12	1831	1847	17	Borland	long smc checkout
85	6/3	8:30	8:54	0:24	1866	1870	5	Norman	examine SMC a2r
86	6/3	10:57	16:09	5:12	1870	1901	32	Borland	slowed down sim 4X
87	6/3	16:27	17:03	0:35	1901	1906	6	Barrett	
88	6/4	8:30	9:48	1:18	1921	1935	15	Gregory	first flight
89	6/4	9:57	10:40	0:43	1936	1960	25	Borland	George Hunt's SMC coding
90	6/4	10:40	11:07	0:27	1961	1966	6	Barrett	Tracked down duplicate flags
91	6/4	14:31	15:45	1:13	1969	1990	22	Barrett	Showed numerical instability
92	6/4	16:05	17:30	1:25	1996	2017	22	Borland	invest. various param changes
93	6/5	8:35	9:25	0:49	2021	2037	17	Barrett	
94	6/5	9:32	11:02	1:30	2039	2053	15	Borland	
95	6/5	14:44	15:20	0:35	2056	2059	4	Barrett	flew with Mike N
96	6/5	15:38	16:25	0:47	2061	2074	14	Gregory	
97	6/8	14:30	15:44	1:14	2079	2103	25	Norman	
98	6/8	16:06	16:19	0:13	2109	2115	7	Gregory	Looked at hdg task changes
99	6/17	14:30	16:20	1:50	2144	2167	24	Norman	
100	6/17	16:25	17:00	0:35	2168	2175	8	Rivers	
101	6/24	9:15	9:30	0:15	2179	2187	9	Otto	
Totals				106.23	hours		1524	runs	

Appendix E: Run Log for LARC.4

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Incep-tor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operate	Op@>	DASE	Motion on	Data saved	Notes	Config changes
0076	8-Apr	Rowhani	Williams	--	SS	0.23	0	0	4050	000	8.30	--	FCS	N	Y	
0077	8-Apr	Rowhani	Williams	--	SS	0.23	0	0	4050	000	8.35	--	FCS	N	Y	IC to 10K, 0.65M
0078	8-Apr	Rowhani	Williams	--	SS	0.23	0	0	4050	000	8.40	--	FCS	N	Y	IC to 50K, 2.3M - reqd first order act
0079	8-Apr	Rowhani	Williams	--	SS	0.23	0	0	4050	000	8.46	--	FCS	N	Y	moderate turb - trim problem in 4020
0080	8-Apr	Rowhani	Williams	--	SS	0.23	0	0	4050	000	9.06	--	FCS	N	Y	
0081	8-Apr	Rowhani	Williams	--	SS	0.23	0	0	4050	000	--	--	FCS	N	Y	
0082	8-Apr	Rowhani	Williams	--	SS	0.23	0	0	4050	000	--	--	FCS	N	Y	
0083	8-Apr	Rowhani	Williams	--	SS	0.23	0	0	4069	000	9.09	--	FCS	N	Y	mod turb
0084	8-Apr	Rowhani	Williams	--	SS	0.23	0	0	4070	000	9.11	--	FCS	N	Y	mod turb
0085	8-Apr	Rowhani	Williams	--	SS	0.23	0	0	4070	000	9.14	--	FCS	N	Y	mod turb
0086	8-Apr	Rowhani	Williams	--	SS	0.23	0	0	4070	000	9.20	--	FCS	N	Y	mod turb
0087	8-Apr	Rowhani	Williams	--	SS	0.23	0	0	4050	000	9.28	--	FCS	N	Y	quickend gamma off, mod turb
0088	8-Apr	Rowhani	Williams	--	SS	0.23	0	0	2011	000	9.35	--	FCS	N	Y	
0089	8-Apr	Rowhani	Williams	--	SS	0.23	0	0	2011	000	9.38	--	FCS	N	Y	
0090	8-Apr	Rowhani	Williams	--	SS	0.24	0	0	4080	000	--	--	FCS	N	N	checkout
0091	8-Apr	Rowhani	Williams	--	SS	0.24	0	0	4050	000	9.20	--	FCS	N	N	
0092	8-Apr	Rowhani	Derry	--	CS	0.24	0	0	2011	000	9.59	--	FCS	N	Y	
0093	8-Apr	Rowhani	Derry	--	CS	0.24	0	0	2011	000	10.00	--	FCS	N	Y	integrator windup - pitchdown on T/O
0094	8-Apr	Rowhani	Derry	--	CS	0.24	0	0	2011	000	10.02	--	FCS	N	Y	
0095	8-Apr	Rowhani	Derry	--	CS	0.24	0	0	2011	000	10.04	--	FCS	N	Y	integrator windup - pitchUP on T/O
0096	8-Apr	Rowhani	Derry	--	CS	0.24	0	0	4020	000	10.09	--	FCS	N	N	
0097	8-Apr	Rowhani	Derry	--	CS	0.24	0	0	4020	000	10.10	--	FCS	N	N	
0098	8-Apr	Rowhani	Derry	--	SS	0.24	0	0	2011	000	10.15	--	FCS	N	N	
0099	8-Apr	Rowhani	Derry	--	SS	0.24	0	0	2011	000	10.16	--	FCS	N	Y	
0100	8-Apr	Rowhani	Derry	--	SS	0.24	0	0	2011	000	10.18	--	FCS	N	Y	
0101	8-Apr	Rowhani	--	--	SS	0.24	0	0	2011	000	10.21	--	FCS	N	N	
0102	8-Apr	Rowhani	--	--	SS	0.24	0	0	5010	000	10.24	--	FCS	N	N	
0103	8-Apr	Rowhani	--	--	SS	0.24	0	0	5030	000	10.36	--	FCS	N	Y	IC 10K, M 0.45 - want trim
0104	8-Apr	Rowhani	--	--	SS	0.24	0	0	3079	000	10.40	--	FCS	N	Y	
0105	8-Apr	Rowhani	--	--	SS	0.24	0	0	3076	000	10.49	--	FCS	N	Y	
0106	8-Apr	Rowhani	--	--	SS	0.24	0	0	4050	000	10.50	--	FCS	N	Y	ve_bias_fir_enable=0
0107	8-Apr	Rowhani	--	--	SS	0.24	0	0	4050	000	10.54	--	FCS	N	Y	ve_bias_fir_enable=0
0108	8-Apr	Rowhani	--	--	SS	0.24	0	0	4050	000	10.55	--	FCS	N	Y	ve_bias_fir_enable=1
0109	8-Apr	Rowhani	--	--	SS	0.24	0	0	4050	000	10.57	--	FCS	N	Y	
0110	8-Apr	Rowhani	--	--	SS	0.24	0	0	4050	000	10.58	--	FCS	N	Y	
0111	8-Apr	Rowhani	--	--	SS	0.24	0	0	4050	000	10.59	--	FCS	N	Y	A/S
0112	8-Apr	Redman	--	--	SS	0.24	0	0	4050	000	14.20	--	FCS	N	N	looked at roll response
0113	8-Apr	Williams	--	--	SS	0.25	0	0	4050	000	14.26	--	FCS	N	N	looking at roll perf.
0114	8-Apr	Williams	--	--	SS	0.25	0	0	4050	000	14.32	--	FCS	N	N	down for print options
0115	8-Apr	Rowhani	Williams	--	SS	0.25	0	0	3076	000	14.43	--	FCS	N	N	check flight
0116	8-Apr	Rowhani	Williams	--	SS	0.25	0	0	3084	000	14.50	--	FCS	N	N	eval bank angle hold
0117	8-Apr	Rowhani	Williams	--	SS	0.25	0	0	0000	000	--	--	FCS	N	N	turb off
0118	8-Apr	Rowhani	Williams	--	SS	0.25	0	0	0000	000	--	--	FCS	N	N	
0119	8-Apr	Rowhani	Williams	--	SS	0.25	0	0	0000	000	16.37	--	FCS	N	N	
0120	8-Apr	Rowhani	Williams	--	SS	0.25	0	0	4050	000	16.38	--	FCS	N	Y	
0121	8-Apr	Rowhani	Williams	--	CS	0.25	0	0	4050	000	16.39	--	FCS	N	Y	
0122	8-Apr	Rowhani	Williams	--	CS	0.25	0	0	3084	000	16.44	--	FCS	N	Y	
0123	8-Apr	Rowhani	Williams	--	CS	0.25	0	0	4050	000	16.46	--	FCS	N	Y	
0124	8-Apr	Rowhani	Williams	--	CS	0.25	0	0	4050	000	16.48	--	FCS	N	Y	
0125	8-Apr	Rowhani	Williams	--	CS	0.25	0	0	4050	000	16.50	--	FCS	N	Y	
0126	8-Apr	Rowhani	Williams	--	CS	0.25	0	0	4050	000	16.53	--	FCS	N	Y	ve_bias_fir_enable=1; no turb: overspeed
0127	8-Apr	Rowhani	Williams	--	CS	0.25	0	0	4050	000	16.53	--	FCS	N	Y	ve_bias_fir_enable=1; no turb: overspeed
0128	8-Apr	Rowhani	Williams	--	CS	0.25	0	0	4050	000	16.54	--	FCS	N	Y	ve_bias_fir_enable=1; no turb: overspeed
0129	8-Apr	Rowhani	Williams	--	CS	0.25	0	0	4050	000	16.55	--	FCS	N	Y	ve_bias_fir_enable=1; no turb: underspeed

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers.	Lat FCS	Long FCS	FCS	Task	Config Operator	DASE on	Motor on	Data saved	Config changes		
															Audible	Vidēe	
0130	8-Apr	Rowhani	--	Williams	--	CS 0.25	0	0	4050	000	16:57	--	FCS N	N	Y	ve_bias_fir_enable=0; th_retard_enable=1	
0136	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	2011	000	8:24	--	FCS N	Y	Y	ve_bias_fir_enable=0; th_retard_enable=1	
0137	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	8:26	--	FCS N	Y	Y	discrete gust; mod turb; overspeed on op	
0138	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	8:29	--	FCS N	Y	Y	discrete gust; mod turb; overspeed on op	
0139	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	8:30	--	FCS N	Y	Y	discrete gust; mod turb	
0140	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	8:33	--	FCS N	Y	Y	discrete gust; mod turb	
0141	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	8:34	--	FCS N	Y	Y	discrete gust; mod turb	
0142	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	8:37	--	FCS N	Y	Y	discrete gust; no turb	
0143	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	8:40	--	FCS N	Y	Y	discrete gust; mod turb	
0144	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	8:42	--	FCS N	Y	Y	discrete gust; mod turb	
0145	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	8:44	--	FCS N	Y	Y	discrete gust; no turb	
0146	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	8:50	--	FCS N	Y	Y	qam_quick_afps=1; mod turb	
0147	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	8:54	--	FCS N	Y	Y	qam_quick_afps=1; mod turb	
0148	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	8:56	--	FCS N	Y	Y	qam_quick_afps=1; mod turb	
0149	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	9:00	--	FCS N	Y	Y	qam_quick_afps=0; mod turb; ve_bias_fir_enable=1	
0150	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	9:02	--	FCS N	Y	Y	same as prev; throttles came back to idle	
0151	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	9:03	--	FCS N	Y	Y	same as prev; throttles came back to idle	
0152	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	9:04	--	FCS N	Y	Y	same as prev; throttles came back to idle	
0153	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	9:08	--	FCS N	Y	Y	ve_bias_fir_enable=0	
0154	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	9:10	--	FCS N	Y	Y	ve_bias_fir_enable=1; throttled back on op	
0155	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	9:12	--	FCS N	Y	Y	ve_bias_fir_enable=1	
0156	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	9:15	--	FCS N	Y	Y	ve_bias_fir_enable=1	
0157	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	9:17	--	FCS N	Y	Y	ve_bias_fir_enable=1; mod A/S error	
0158	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	9:19	--	FCS N	Y	Y	ve_bias_fir_enable=0	
0159	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	9:19	--	FCS N	Y	Y	ve_bias_fir_enable=1	
0160	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	9:21	--	FCS N	Y	Y	ve_bias_fir_enable=1; big a/s error	
0161	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8050	000	9:23	--	FCS N	Y	Y	ve_bias_fir_enable=1	
0162	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4093	000	9:26	--	FCS N	Y	Y	ve_bias_fir_enable=1; no turb	
0163	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4093	000	9:29	--	FCS N	Y	Y	ve_bias_fir_enable=1; no turb	
0164	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4093	000	9:33	--	FCS N	Y	Y	ve_bias_fir_enable=1; no turb; big a/s error	
0165	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4093	000	9:34	--	FCS N	Y	Y	ve_bias_fir_enable=1; no turb	
0166	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4093	000	9:39	--	FCS N	Y	Y	ve_bias_fir_enable=0; th_retard_enable=1	
0167	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4093	000	9:41	--	FCS N	Y	Y	th_retard_enable=1	
0168	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4050	000	9:45	--	FCS N	Y	Y	mod turb	
0169	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	5010	000	9:49	--	FCS N	Y	Y	mod turb	
0170	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	5080	000	9:58	--	FCS N	Y	Y	mod turb	
0171	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	5090	000	10:05	--	FCS N	Y	Y	includes gust; 20 seconds	
0172	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8021	000	10:15	--	FCS N	Y	Y	mod turb	
0173	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8020	000	12:11	--	FCS N	Y	Y	mod turb	
0174	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4050	000	12:18	--	FCS N	Y	Y	mod turb	
0175	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4050	000	12:20	--	FCS N	Y	Y	mod turb	
0176	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4050	000	12:21	--	FCS N	Y	Y	mod turb	
0177	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4050	000	12:23	--	FCS N	Y	Y	mod turb	
0178	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8089	000	12:25	--	FCS N	Y	Y	mod turb	
0179	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8089	000	12:28	--	FCS N	Y	Y	mod turb	
0180	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4050	000	12:31	--	FCS N	Y	Y	mod turb	
0181	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4050	000	12:33	--	FCS N	Y	Y	mod turb	
0182	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4050	000	12:34	--	FCS N	Y	Y	mod turb	
0183	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	8089	000	12:39	--	FCS N	Y	Y	mod turb	
0184	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4050	000	12:41	--	FCS N	Y	Y	mod turb	
0185	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4050	000	12:42	--	FCS N	Y	Y	mod turb	
0186	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4050	000	12:43	--	FCS N	Y	Y	mod turb	
0187	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4050	000	12:51	--	FCS N	Y	Y	mod turb	
0188	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4093	000	12:51	--	FCS N	Y	Y	mod turb	
0189	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4093	000	12:51	--	FCS N	Y	Y	mod turb	
0190	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4093	000	12:51	--	FCS N	Y	Y	mod turb	
0191	9-Apr	Rowhani	--	Rowhani	--	SS 0.26	0	0	4093	000	12:51	--	FCS N	Y	Y	mod turb	

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer ver	Incep tor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operate	DASEF Operate	Data saved	Notes	Config changes
0193	9-Apr	Williams	--	--	Turret	0.27	0	0	4050	000	13.41	--	FCS	N
0194	9-Apr	Williams	--	--	Turret	0.27	0	0	4050	000	13.42	--	FCS	N
0195	9-Apr	Williams	--	--	Turret	0.27	0	0	4050	000	13.43	--	FCS	N
0196	9-Apr	Williams	--	--	Turret	0.27	0	0	4050	000	13.44	--	FCS	N
0197	9-Apr	Williams	--	--	Turret	0.27	0	0	4050	000	13.44	--	FCS	N
0198	9-Apr	Williams	--	--	Turret	0.27	0	0	4050	000	13.44	--	FCS	N
0199	9-Apr	Williams	--	--	SS	0.27	0	0	5090	000	13.54	--	FCS	N
0200	9-Apr	Williams	--	--	SS	0.27	0	0	5090	000	13.55	--	FCS	N
0201	9-Apr	Williams	--	--	SS	0.27	0	0	3084	000	13.57	--	FCS	N
0202	9-Apr	Williams	--	--	SS	0.27	0	0	3084	000	13.58	--	FCS	N
0213	9-Apr	Williams	--	--	Turret	0.27	0	0	4050	000	16.15	--	FCS	N
0214	9-Apr	Williams	--	--	Turret	0.27	0	0	4050	000	16.17	--	FCS	N
0215	9-Apr	Jackson	--	--	Turret	0.27	0	0	8050	000	16.22	--	FCS	N
0216	9-Apr	Jackson	--	--	Turret	0.27	0	0	8050	000	16.22	--	FCS	N
0217	9-Apr	Derry	--	--	Turret	0.27	0	0	8050	000	16.23	--	FCS	N
0218	9-Apr	Jackson	--	--	Turret	0.27	0	0	5080	000	16.25	--	FCS	N
0224	10-Apr	Rowhani	--	--	SS	0.28	0	0	2010	000	8.29	--	FCS	N
0225	10-Apr	Rowhani	--	--	SS	0.28	0	0	2010	000	8.31	--	FCS	N
0226	10-Apr	Rowhani	--	--	SS	0.28	0	0	8021	000	8.34	--	FCS	N
0227	10-Apr	Rowhani	--	--	SS	0.28	0	0	8021	000	8.38	--	FCS	N
0228	10-Apr	Rowhani	--	--	SS	0.28	0	0	5010	000	8.41	--	FCS	N
0229	10-Apr	Rowhani	--	--	SS	0.28	0	0	5010	000	8.43	--	FCS	N
0230	10-Apr	Rowhani	--	--	SS	0.28	0	0	5080	000	8.46	--	FCS	N
0231	10-Apr	Rowhani	--	--	SS	0.28	0	0	5030	000	8.51	--	FCS	N
0232	10-Apr	Rowhani	--	--	SS	0.28	0	0	5080	000	8.54	--	FCS	N
0233	10-Apr	Rowhani	--	--	SS	0.28	0	0	5080	000	8.57	--	FCS	N
0234	10-Apr	Norman	--	--	Rowhani	0.28	0	0	5080	000	9.04	--	FCS	N
0235	10-Apr	Norman	--	--	Rowhani	0.28	0	0	5080	000	9.08	--	FCS	N
0236	10-Apr	Norman	--	--	Rowhani	0.28	0	0	5080	000	9.10	--	FCS	N
0237	10-Apr	Norman	--	--	Rowhani	0.28	0	0	5080	000	9.14	--	FCS	N
0238	10-Apr	Norman	--	--	Rowhani	0.28	0	0	5030	000	9.16	--	FCS	N
0239	10-Apr	Norman	--	--	Rowhani	0.28	0	0	5080	000	9.21	--	FCS	N
0240	10-Apr	Norman	--	--	Rowhani	0.28	0	0	5010	000	9.24	--	FCS	N
0241	10-Apr	Norman	--	--	Rowhani	0.28	0	0	5010	000	9.27	--	FCS	N
0242	10-Apr	Norman	--	--	Rowhani	0.28	0	0	5080	000	9.30	--	FCS	N
0243	10-Apr	Norman	--	--	Rowhani	0.28	0	0	5080	000	9.32	--	FCS	N
0244	10-Apr	Norman	--	--	Rowhani	0.28	0	0	5090	000	9.38	--	FCS	N
0245	10-Apr	Norman	--	--	Rowhani	0.28	0	0	5090	000	9.39	--	FCS	N
0246	10-Apr	Norman	--	--	Rowhani	0.28	0	0	8021	000	9.44	--	FCS	N
0247	10-Apr	Norman	--	--	Rowhani	0.28	0	0	8021	000	9.47	--	FCS	N
0248	10-Apr	Norman	--	--	Rowhani	0.28	0	0	4050	000	10.04	--	FCS	N
0249	10-Apr	Norman	--	--	Rowhani	0.28	0	0	4050	000	9.53	--	FCS	N
0250	10-Apr	Norman	--	--	Rowhani	0.28	0	0	4069	000	9.55	--	FCS	N
0251	10-Apr	Norman	--	--	Rowhani	0.28	0	0	8083	000	9.58	--	FCS	N
0252	10-Apr	Norman	--	--	Rowhani	0.28	0	0	8083	000	10.02	--	FCS	N
0253	10-Apr	Norman	--	--	Rowhani	0.28	0	0	8083	000	10.04	--	FCS	N
0254	10-Apr	Raney	--	--	Turret	0.28	0	0	4020	000	10.09	--	FCS	N
0255	10-Apr	Raney	--	--	SS	0.28	0	0	4020	000	10.11	--	FCS	N
0256	10-Apr	Norman	Williams	--	SS	0.28	0	0	4020	000	10.18	--	FCS	N
0257	10-Apr	Norman	Williams	--	SS	0.28	0	0	4020	000	10.26	--	FCS	N
0258	10-Apr	Norman	Williams	--	SS	0.28	0	0	4020	000	10.36	--	FCS	N
0259	10-Apr	Norman	Williams	--	SS	0.28	0	0	4020	000	10.36	--	FCS	N

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Incep-tor	FCS Vers	Long FCS	Lat FCS	Task	Config Operate	DASE on	Motor on	Data saved	Notes	Config changes				
															Test	DASE on	Motor on	Data saved	Notes
0260	10-Apr	Norman	Williams	--	SS	0.28	0	0	4020	000	10-59	--	--	FCS	Y	N	Y	N	1 sec ground flap retract
0262	10-Apr	Raney	Rowhani	--	Turret	0.28	0	0	4020	000	13-20	--	--	FCS	Y	N	Y	N	
0263	10-Apr	Rivers	Rowhani	--	SS	0.28	0	0	4050	000	13-33	--	--	FCS	N	Y	N	N	750 ft init; mod turb
0264	10-Apr	Rivers	Rowhani	--	SS	0.28	0	0	4050	000	13-37	--	--	FCS	N	Y	N	N	All attitude
0265	10-Apr	Rivers	Rowhani	--	SS	0.28	0	0	5080	000	13-40	--	--	FCS	N	N	N	N	coupling lat/lon thru stick
0266	10-Apr	Rivers	Rowhani	--	SS	0.28	0	0	5080	000	13-46	--	--	FCS	N	N	N	N	mod turb
0267	10-Apr	Rivers	Rowhani	--	SS	0.28	0	0	8050	000	13-56	--	--	FCS	N	Y	N	N	qam_quick_afps=1
0268	10-Apr	Rivers	Rowhani	--	SS	0.28	0	0	8050	000	13-57	--	--	FCS	N	Y	N	N	qam_quick_afps=1
0269	10-Apr	Rivers	Rowhani	--	SS	0.28	0	0	8050	000	14-07	--	--	FCS	N	Y	N	N	ve_bias_fir_enable=1, no turb
0270	10-Apr	Rivers	Rowhani	--	SS	0.28	0	0	8050	000	14-09	--	--	FCS	N	Y	N	N	speed error
0271	10-Apr	Rivers	Rowhani	--	SS	0.28	0	0	4050	000	14-14	--	--	FCS	N	Y	N	N	speed error
0272	10-Apr	Rivers	Rowhani	--	SS	0.28	0	0	4050	000	14-16	--	--	FCS	N	Y	N	N	slight speed error; flap dump working
0273	10-Apr	Rivers	Rowhani	--	SS	0.28	0	0	4050	000	14-17	--	--	FCS	N	Y	N	N	speed error
0274	10-Apr	Rivers	Rowhani	--	SS	0.28	0	0	4050	000	14-18	--	--	FCS	N	Y	N	N	speed error
0275	10-Apr	Rivers	Rowhani	--	SS	0.28	0	0	4050	000	14-20	--	--	FCS	N	Y	N	N	computer crash at reset from this task
0276	10-Apr	Rivers	Rowhani	--	SS	0.28	0	0	4050	000	14-21	--	--	FCS	N	Y	N	N	mod turb; PDTMAX=2
0277	10-Apr	Rivers	Rowhani	--	SS	0.28	0	0	4050	000	14-47	--	--	FCS	N	Y	N	N	altIC = 750
0278	10-Apr	Rivers	Williams	--	SS	0.28	0	0	4050	000	14-48	--	--	FCS	N	Y	N	N	altIC=750
0279	10-Apr	Rivers	Williams	--	SS	0.28	0	0	4050	000	14-52	--	--	FCS	N	Y	N	N	right seat center stick.
0280	10-Apr	Rivers	Williams	--	SS	0.28	0	0	4050	000	15-00	--	--	FCS	N	Y	N	N	fail three engines on T/O
Lost	10-Apr	Rivers	Williams	--	SS	0.28	0	0	4020	000	15-29	--	--	FCS	N	Y	N	N	15 sec roll step mag 0.044444, MFC, 159 KEAS.
0281	10-Apr	Rivers	Williams	--	SS	0.28	0	0	4050	000	15-36	--	--	FCS	N	Y	N	N	Gear up zero turb (bad FCS)
0282	10-Apr	Rivers	Williams	--	SS	0.28	0	0	4050	000	15-41	--	--	FCS	N	Y	N	N	3 sec roll step mag 0.33, MFC, 159 KEAS, Gear up zero turb (bad FCS)
0283	10-Apr	Rivers	Williams	--	CS	0.28	0	0	4050	000	15-46	--	--	FCS	N	Y	N	N	right seat center stick.
0284	10-Apr	Rivers	Williams	--	SS	0.28	0	0	4050	000	15-50	--	--	FCS	N	Y	N	N	fail three engines on T/O
0285	10-Apr	Rivers	Williams	--	SS	0.28	0	0	4050	000	16-07	--	--	FCS	N	Y	N	N	15 sec roll step mag 1.0, MFC, 159 KEAS, Gear up zero turb
0286	10-Apr	Rivers	Williams	--	S/W	L3	0	0	Custom	000	--	--	--	FCS	N	Y	N	N	8 sec roll step mag 1.0, MFC, 159 KEAS, Gear up zero turb
0288	13-Apr	Otto	--	--	S/W	L3	0	0	Custom	000	--	--	--	FCS	N	Y	N	N	15 sec ped step, mag -0.0625, MFC, 159 KEAS, Gear up zero turb
0290	13-Apr	Otto	--	--	S/W	L3	0	0	Custom	000	--	--	--	FCS	N	Y	N	N	Gear up zero turb
0291	13-Apr	Otto	--	--	S/W	L3	0	0	Custom	000	--	--	--	FCS	N	Y	N	N	up zero turb
0295	13-Apr	Otto	--	--	S/W	0.28	0	0	Custom	000	--	--	--	FCS	N	Y	N	N	demo to Ray
0298	13-Apr	Otto	--	--	S/W	0.28	0	0	Custom	000	--	--	--	FCS	N	Y	N	N	demo to Ray
0299	13-Apr	Otto	--	--	S/W	0.28	0	0	Custom	000	--	--	--	FCS	N	Y	N	N	Gear up zero turb (wrong FCS)
0301	13-Apr	Kraft	Jackson	--	CS	0.28	0	0	4050	000	--	--	--	FCS	N	Y	N	N	3 sec roll step mag 0.33, MFC, 159 KEAS, Gear up zero turb (wrong FCS)
0302	13-Apr	Jackson	Kraft	--	SS	0.28	0	0	4050	000	--	--	--	FCS	N	Y	N	N	1 sec roll step mag 1.0, MFC, 159 KEAS, Gear up zero turb (wrong FCS)
0303	13-Apr	Jackson	Kraft	--	CS	0.28	0	0	4020	000	--	--	--	FCS	N	Y	N	N	1 sec roll step mag 1.0, MFC, 159 KEAS, Gear up zero turb (wrong FCS)
0304	13-Apr	Jackson	Kraft	--	CS	0.28	0	0	4050	000	--	--	--	FCS	N	Y	N	N	1 sec roll step mag 1.0, MFC, 159 KEAS, Gear up zero turb (wrong FCS)
0305	13-Apr	Jackson	Kraft	--	CS	0.28	0	0	4020	000	--	--	--	FCS	N	Y	N	N	1 sec roll step mag 1.0, MFC, 159 KEAS, Gear up zero turb (wrong FCS)
0306	13-Apr	Jackson	Kraft	--	CS	0.28	0	0	4050	000	--	--	--	FCS	N	Y	N	N	1 sec roll step mag 1.0, MFC, 159 KEAS, Gear up zero turb (wrong FCS)
0307	13-Apr	Kraft	Jackson	--	CS	0.28	0	0	4050	000	--	--	--	FCS	N	Y	N	N	1 sec roll step mag 1.0, MFC, 159 KEAS, Gear up zero turb (wrong FCS)
0317	13-Apr	Otto	--	--	S/W	??	0	0	Custom	000	--	--	--	FCS	N	Y	N	N	15 sec roll step mag 0.44444, MFC, 159 KEAS, Gear up zero turb (wrong FCS)
0318	13-Apr	Otto	--	--	S/W	??	0	0	Custom	000	--	--	--	FCS	N	Y	N	N	15 sec roll step mag 0.44444, MFC, 159 KEAS, Gear up zero turb (wrong FCS)
0319	13-Apr	Otto	--	--	S/W	??	0	0	Custom	000	--	--	--	FCS	N	Y	N	N	15 sec roll step mag 0.44444, MFC, 159 KEAS, Gear up zero turb (wrong FCS)
0331	13-Apr	Otto	--	--	S/W	0.29	0	0	Custom	000	--	--	--	FCS	N	Y	N	N	Gear up zero turb (tub on, step size 10 too big)

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor ver	FCS Vers	Long FCS	FCS	Lat FCS	Task	Config Operator	Config Operator	Vide o	Audi o	DASE on	Motor on	Data saved	Notes	Config changes
0331	13-Apr	Otto	--	--	S/W	0.29	0	0	Custom	000	--	--	FCS	N	N	Y	15 sec roll step mag 0.444444, MFC, 159 KEAS\$, Gear up zero turb (tub on, step size 10x too big)		
0332	13-Apr	Otto	--	--	S/W	0.29	0	0	Custom	000	--	--	FCS	N	N	Y	3 sec roll step mag 0.33, MFC, 159 KEAS, Gear up zero turb (turb on)		
0333	13-Apr	Otto	--	--	S/W	0.29	0	0	Custom	000	--	--	FCS	N	N	Y	1 sec roll step mag 1.0, MFC, 159 KEAS, Gear up zero turb (turb on)		
0334	13-Apr	Derry	Martinez	Martinez	--	SS	0.29	0	0	5070	000	--	--	FCS	N	N	N		
0335	13-Apr	Derry	Martinez	Martinez	--	SS	--	0	0	4050	000	--	--	FCS	N	N	N		
0336	13-Apr	Derry	Martinez	Martinez	--	SS	--	0	0	4020	000	--	--	FCS	N	N	N		
0337	13-Apr	Derry	Martinez	Martinez	--	SS	--	0	0	2011	000	14.37	--	FCS	N	N	N		
0338	13-Apr	Derry	Martinez	Martinez	--	SS	--	0	0	2010	000	14.38	--	FCS	N	N	N		
0339	13-Apr	Derry	Martinez	Martinez	--	SS	--	0	0	2010	000	14.38	--	FCS	N	N	N		
0340	13-Apr	Otto	--	--	S/W	0.29	0	0	Custom	000	--	--	FCS	N	N	Y	15 sec roll step mag 0.444444, MFC, 159 KEAS, Gear up zero turb		
0341	13-Apr	Otto	--	--	S/W	0.29	0	0	Custom	000	--	--	FCS	N	N	Y	3 sec roll step mag 0.33 MFC, 159 KEAS, Gear up zero turb		
0342	13-Apr	Otto	--	--	S/W	0.29	0	0	Custom	000	--	--	FCS	N	N	Y	1 sec roll step mag 1.0, MFC, 159 KEAS, Gear up zero turb		
0344	13-Apr	Williams	Todd2	Cubiatoh	--	SS	0.30	0	0	4050	000	15.31	--	FCS	N	N	N		
0345	13-Apr	Williams	Todd2	Cubiatoh	--	SS	0.30	0	0	4050	000	15.33	--	FCS	N	N	N		
0346	13-Apr	Williams	Todd2	Cubiatoh	--	SS	0.30	0	0	4050	000	15.36	--	FCS	N	N	N		
0347	13-Apr	Williams	Todd2	Cubiatoh	--	SS	0.30	0	0	4050	000	15.38	--	FCS	N	N	N		
0348	13-Apr	Williams	Todd2	Cubiatoh	--	SS	0.30	0	0	4050	000	15.39	--	FCS	N	N	N		
0349	13-Apr	Williams	Todd2	Cubiatoh	--	SS	0.30	0	0	4050	000	15.40	--	FCS	N	N	N		
0350	13-Apr	Todd2	Williams	Cubiatoh	--	SS	0.30	0	0	4050	000	15.44	--	FCS	N	N	N		
0351	13-Apr	Todd2	Williams	Cubiatoh	--	SS	0.30	0	0	4050	000	15.45	--	FCS	N	N	N		
0352	13-Apr	Todd2	Williams	Cubiatoh	--	SS	0.30	0	0	4083	000	15.48	--	FCS	N	N	N		
0353	13-Apr	Todd2	Williams	Cubiatoh	--	SS	0.30	0	0	4089	000	15.51	--	FCS	N	N	N		
0354	13-Apr	Todd2	Williams	Cubiatoh	--	SS	0.30	0	0	2010	000	15.54	--	FCS	N	N	N		
0355	13-Apr	Todd2	Williams	Cubiatoh	--	SS	0.30	0	0	2010	000	15.57	--	FCS	N	N	N		
0356	13-Apr	Todd2	Williams	Cubiatoh	--	SS	0.30	0	0	4050	000	16.00	--	FCS	N	N	N		
0357	13-Apr	Martinez	Kraft	--	SS	0.30	0	0	4050	000	16.16	--	FCS	N	N	Y	ve_bias_fir_enable=1; no turb		
0358	13-Apr	Martinez	Kraft	--	SS	0.30	0	0	4050	000	16.19	--	FCS	N	N	N			
0359	13-Apr	Martinez	Kraft	--	SS	0.30	0	0	4050	000	16.21	--	FCS	N	N	N			
0360	13-Apr	Martinez	Kraft	--	SS	0.30	0	0	4050	000	16.24	--	FCS	N	N	N			
0361	13-Apr	Martinez	Kraft	--	SS	0.30	0	0	4050	000	16.25	--	FCS	N	N	N			
0362	13-Apr	Martinez	Kraft	--	SS	0.30	0	0	4050	000	16.28	--	FCS	N	N	N			
0363	13-Apr	Martinez	Kraft	--	SS	0.30	0	0	4050	000	16.30	--	FCS	N	N	N			
0364	13-Apr	Martinez	Kraft	--	SS	0.30	0	0	2011	000	16.39	--	FCS	N	N	N			
0365	13-Apr	Martinez	Kraft	--	SS	0.30	0	0	2011	000	16.41	--	FCS	N	N	N			
0366	13-Apr	Martinez	Kraft	--	SS	0.30	0	0	4050	000	16.46	--	FCS	N	N	N			
0367	13-Apr	Martinez	Kraft	--	SS	0.30	0	0	3086	000	16.51	--	FCS	N	N	N			
0368	13-Apr	Martinez	Kraft	--	SS	0.30	0	0	3086	000	16.53	--	FCS	N	N	N			
0369	13-Apr	Martinez	Kraft	--	SS	0.30	0	0	8069	000	9.17	--	FCS	N	N	N			
0370	13-Apr	Martinez	Kraft	--	SS	0.30	0	0	8069	000	9.19	--	FCS	N	N	Y	th_retrd_enable=1; two 360 rolls		
0371	14-Apr	Norman	Kraft	--	SS	0.30	0	0	8069	000	9.22	--	FCS	N	N	Y	ve_cmd_rl=-/+/-10; ve_bias_fir_enable=0; gainset=1		
0372	14-Apr	Norman	Kraft	--	SS	0.30	0	0	8069	000	9.24	--	FCS	N	N	Y	ve_bias_fir_enable=0; gainset=1		
0373	14-Apr	Norman	Kraft	--	SS	0.30	0	0	8069	000	9.24	--	FCS	N	N	Y	ve_bias_fir_enable=0; gainset=1		
0374	14-Apr	Norman	Kraft	--	SS	0.30	0	0	8069	000	9.24	--	FCS	N	N	Y	ve_bias_fir_enable=0; gainset=1		
0375	14-Apr	Norman	Kraft	--	SS	0.30	0	0	8069	000	9.28	--	FCS	N	N	Y	gam_quick_enable=0; gainset=1		
0376	14-Apr	Norman	Kraft	--	SS	0.30	0	0	8069	000	9.30	--	FCS	N	N	Y	ve_bias_fir_enable=0; gainset=1		
0377	14-Apr	Norman	Kraft	--	SS	0.30	0	0	8069	000	9.33	--	FCS	N	N	Y	ve_bias_fir_enable=0; gainset=1		
0378	14-Apr	Norman	Kraft	--	SS	0.30	0	0	8069	000	9.36	--	FCS	N	N	Y	ve_bias_fir_enable=0; gainset=1		
0379	14-Apr	Norman	Kraft	--	SS	0.30	0	0	8069	000	9.39	--	FCS	N	N	Y	ve_bias_fir_enable=0; gainset=1		
0380	14-Apr	Norman	Kraft	--	SS	0.30	0	0	8069	000	9.39	--	FCS	N	N	Y	ve_bias_fir_enable=0; gainset=1		

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers	Lat FCS	Task	Config Operate	DASE on	Motor on	Data saved	Notes	Config changes		
														Audi	Vide	
0381	14-Apr	Norman	Kraft	--	SS	0.30	0	0	4050	000	9.46	--	FCS N	Y	Y	ve_cmd_rl=+/-10; ve_bias_fir_enable=1
0382	14-Apr	Norman	Kraft	--	SS	0.30	0	0	4050	000	9.46	--	FCS N	Y	Y	ve_cmd_rl=+/-10; ve_bias_fir_enable=1
0383	14-Apr	Norman	Kraft	--	SS	0.30	0	0	4050	000	9.50	--	FCS N	Y	Y	ve_cmd_rl=+/-10; ve_bias_fir_enable=1
0384	14-Apr	Norman	Kraft	--	SS	0.30	0	0	4050	000	9.53	--	FCS N	Y	Y	ve_cmd_rl=+/-10; th_reard_enable=1
0385	14-Apr	Norman	Kraft	--	SS	0.30	0	0	4053	000	9.54	--	FCS N	Y	Y	ve_cmd_rl=+/-10; th_reard_enable=1
0386	14-Apr	Norman	Kraft	--	SS	0.30	0	0	4093	000	9.57	--	FCS N	Y	Y	ve_cmd_rl=+/-10; ve_bias_fir_enable=1
0387	14-Apr	Norman	Kraft	--	SS	0.30	0	0	4093	000	10.04	--	FCS N	Y	Y	ve_cmd_rl=+/-10; ve_bias_fir_enable=1
0388	14-Apr	Norman	Kraft	--	SS	0.30	0	0	2010	000	10.04	--	FCS N	Y	Y	ve_bias_fir_enable=1; ve_bias_fir_enable=1
0389	14-Apr	Norman	Williams	--	SS	0.30	0	0	4069	000	10.42	--	FCS N	Y	Y	PDTMAX=20.0
0390	14-Apr	Norman	Williams	--	SS	0.30	0	0	4069	000	10.45	--	FCS N	Y	Y	PDTMAX=20.0
0391	14-Apr	Norman	Williams	--	SS	0.30	0	0	4069	000	10.47	--	FCS N	Y	Y	PDTMAX=20.0
0392	14-Apr	Norman	Williams	--	SS	0.30	0	0	4069	000	10.50	--	FCS N	Y	Y	PDTMAX=20.0
0393	14-Apr	Norman	Rivers	--	SS	0.30	0	0	4069	000	10.51	--	FCS N	Y	N	gam_quick_afps=1;
0396	14-Apr	Norman	Rivers	--	SS	0.30	0	0	4050	000	14.41	--	FCS N	Y	Y	ve_bias_fir_enable=1; ve_cmd_rl=+/-10 (manual retard anyway)
0397	14-Apr	Rivers	Kraft	--	SS	0.30	0	0	4050	000	14.43	--	FCS N	Y	Y	gam_quick_afps=1;
0398	14-Apr	Rivers	Kraft	--	SS	0.30	0	0	4050	000	14.46	--	FCS N	Y	Y	ve_bias_fir_enable=1; ve_cmd_rl=+/-10
0399	14-Apr	Rivers	Kraft	--	SS	0.30	0	0	4050	000	14.50	--	FCS N	Y	Y	gam_quick_afps=1; ve_bias_fir_enable=1; ve_cmd_rl=+/-10
0400	14-Apr	Rivers	Kraft	--	SS	0.30	0	0	4050	000	14.54	--	FCS N	Y	Y	gam_quick_afps=1; th_reard_enable=1; ve_cmd_rl=+/-10
0401	14-Apr	Rivers	Kraft	--	SS	0.30	0	0	4050	000	14.57	--	FCS N	Y	Y	gam_quick_afps=1; th_reard_enable=1; ve_cmd_rl=+/-10
0402	14-Apr	Rivers	Kraft	--	SS	0.30	0	0	4093	000	15.00	--	FCS N	Y	Y	gam_quick_afps=1; th_reard_enable=1; ve_cmd_rl=+/-10
0403	14-Apr	Rivers	Kraft	--	SS	0.30	0	0	4093	000	15.02	--	FCS N	Y	Y	gam_quick_afps=1; th_reard_enable=1; ve_cmd_rl=+/-10
0404	14-Apr	Rivers	Kraft	--	SS	0.30	0	0	4093	000	15.06	--	FCS N	Y	Y	gam_quick_afps=1; man_throttles
0405	14-Apr	Rivers	Kraft	--	SS	0.30	0	0	4050	000	15.12	--	FCS N	Y	Y	gam_quick_afps=1; ve_bias_fir_enable=1; ve_cmd_rl=+/-10; no turb;
0406	14-Apr	Rivers	Kraft	--	SS	0.30	0	0	4050	000	15.15	--	FCS N	Y	Y	gam_quick_afps=1; man_throttles; DGE on
0407	14-Apr	Rivers	Kraft	--	SS	0.30	0	0	4050	000	15.17	--	FCS N	Y	Y	gam_quick_afps=1; ve_bias_fir_enable=1; ve_cmd_rl=+/-10; no turb;
0408	14-Apr	Rivers	Kraft	--	SS	0.30	0	0	4050	000	15.19	--	FCS N	Y	Y	man throttles; DGE on; rudder kick
0409	14-Apr	Rivers	Kraft	--	CS	0.30	0	0	4050	000	15.24	--	FCS N	N	N	man throttles; DGE on
0410	14-Apr	Williams	--	--	CS	0.30	0	0	4050	000	16.00	--	FCS N	N	N	gam_quick_afps=1; ve_bias_fir_enable=1; ve_cmd_rl=+/-10; no turb;
0411	14-Apr	Williams	--	--	CS	0.30	0	0	4050	000	16.07	--	FCS N	N	N	gam_quick_afps=1; ve_bias_fir_enable=1; ve_cmd_rl=+/-10; no turb;
0412	14-Apr	Williams	--	--	CS	0.30	0	0	4050	000	16.09	--	FCS N	N	N	gam_quick_afps=1; ve_bias_fir_enable=1; ve_cmd_rl=+/-10; no turb; pdtmax=20; no turb - strange negative alpha
0413	14-Apr	Williams	--	--	CS	0.30	0	0	4090	000	16.14	--	FCS N	N	N	Y

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers	Lat FCS	Task	Config Operator	DASE on	Motor on	Data saved	Notes	Config changes						
														Audi	Vide	Test	DASE on	Motor on	Data saved	Notes
0414	14-Apr	Williams	--	--	CS	0.30	0	0	4090	000	16.18	--	--	FCS	N	N	N	N	Y	pdtnax=20; no turb - strange negative alpha
0415	14-Apr	Williams	--	--	CS	0.30	0	0	4090	000	16.18	--	--	FCS	N	N	N	N	Y	pdtnax=20; no turb - strange negative alpha
0416	14-Apr	Jackson	--	--	Turret	0.30	0	0	4090	000	16.28	--	--	FCS	N	N	N	N	Y	Confirmed blowback at higher Q; noticed elevator tiny
0421	15-Apr	Jackson	--	--	SS	0.30	0	0	3030	000	8.20	--	--	FCS	N	Y	N	N	Y	Confirmed elevator tiny after flap reconfig
0422	15-Apr	Jackson	--	--	SS	0.30	0	0	3030	000	8.30	--	--	FCS	N	Y	N	N	Y	Flaps remained down on landing for considerable time - wheelbarrow?
0423	15-Apr	Jackson	--	--	SS	0.30	0	0	4050	000	8.38	--	--	FCS	N	Y	N	N	Y	Confirmed elevator rampout
0424	15-Apr	Jackson	--	--	SS	0.30	0	0	2010	000	8.40	--	--	FCS	N	Y	N	N	Y	Takeoff followed by aileron roll
0432	15-Apr	Rivers	Kraft	--	SS	0.30	0	0	2030	000	10.43	--	--	FCS	N	N	N	N	Y	aileron roll 20K 300 KEAS
0433	15-Apr	Rivers	Kraft	--	SS	0.30	0	0	5090	000	10.48	--	--	FCS	N	Y	Y	Y	Y	1000 AGL no HUD
0434	15-Apr	Rivers	Kraft	--	SS	0.30	0	0	4050	000	10.51	--	--	FCS	N	Y	Y	Y	Y	1000 AGL no HUD
0435	15-Apr	Rivers	Kraft	--	SS	0.30	0	0	4050	000	10.54	--	--	FCS	N	Y	Y	Y	Y	1000 AGL no HUD; DGE on
0436	15-Apr	Rivers	Kraft	--	SS	0.30	0	0	4050	000	10.58	--	--	FCS	N	Y	Y	Y	Y	1000 AGL no HUD
0440	15-Apr	Rivers	Kraft	--	SS	0.10	0	0	4050	000	14.30	--	--	FCS	N	Y	Y	Y	Y	1000 AGL no HUD
0441	15-Apr	Rivers	Kraft	--	SS	0.10	0	0	4050	000	14.32	--	--	FCS	N	Y	Y	Y	Y	1000 AGL no HUD; DGE on
0442	15-Apr	Rivers	Kraft	--	SS	0.10	0	0	4050	000	14.35	--	--	FCS	N	Y	Y	Y	Y	1000 AGL no HUD; DGE on
0443	15-Apr	Rivers	Kraft	--	SS	0.30	0	0	4050	000	14.39	--	--	FCS	N	Y	Y	Y	Y	1000 AGL no HUD; DGE on
0444	15-Apr	Rivers	Kraft	--	SS	0.10	0	0	4069	000	14.42	--	--	FCS	N	Y	Y	Y	Y	started at 500'
0445	15-Apr	Rivers	Kraft	--	SS	0.10	0	0	4069	000	14.54	--	--	FCS	N	Y	Y	Y	Y	not flown to TD
0446	15-Apr	Rivers	Kraft	--	SS	0.10	0	0	8089	000	14.59	--	--	FCS	N	Y	Y	Y	Y	hosed; weird things at operate
0447	15-Apr	Rivers	Kraft	--	SS	0.30	0	0	8089	000	15.08	--	--	FCS	N	Y	Y	Y	Y	" ; ctrl law thinks there is a speed err
0448	15-Apr	Rivers	Kraft	--	SS	0.30	0	0	8089	000	15.16	--	--	FCS	N	Y	Y	Y	Y	same as above; diagnostic run
0449	15-Apr	Rivers	Kraft	--	SS	0.30	0	0	8089	000	15.17	--	--	FCS	N	Y	Y	Y	Y	new initialization of flight path marker on takeoff
0450	15-Apr	Rivers	Kraft	--	SS	0.30	0	0	8089	000	15.20	--	--	FCS	N	Y	Y	Y	Y	gam_quick_enable set to 0 - problem:
0470	16-Apr	Rivers	Kraft	--	SS	0.30	0	0	2010	000	10.27	--	--	FCS	N	Y	Y	Y	Y	autothrottle disengaged
0471	16-Apr	Rivers	Kraft	--	SS	0.10	0	0	8089	000	10.33	--	--	FCS	N	Y	Y	Y	Y	qam_quick_enable set to 0; unknown FF
0472	16-Apr	Rivers	Kraft	--	SS	0.10	0	0	8089	000	10.35	--	--	FCS	N	Y	Y	Y	Y	qam_quick_enable set to 0; unknown FF
0473	16-Apr	Rivers	Kraft	--	SS	0.10	0	0	8089	000	10.37	--	--	FCS	N	Y	Y	Y	Y	qam_quick_enable set to 0; new FF
0474	16-Apr	Rivers	Kraft	--	SS	0.31	0	0	8089	000	10.41	--	--	FCS	N	Y	Y	Y	Y	qam_quick_enable set to 0; new FF
0475	16-Apr	Rivers	Kraft	--	SS	0.31	0	0	8089	000	10.45	--	--	FCS	N	Y	Y	Y	Y	qam_quick_enable set to 0; new FF
0476	16-Apr	Rivers	Kraft	--	SS	0.31	0	0	8089	000	10.50	--	--	FCS	N	Y	Y	Y	Y	qam_quick_enable set to 0; new FF
0477	16-Apr	Rivers	Kraft	--	SS	0.31	0	0	8089	000	10.52	--	--	FCS	N	Y	Y	Y	Y	qam_quick_enable set to 0; new FF
0478	16-Apr	Rivers	Kraft	--	SS	0.31	0	0	8089	000	10.57	--	--	FCS	N	Y	Y	Y	Y	qam_quick_enable set to 0; new FF; seq circle off
0479	16-Apr	Rivers	Kraft	--	SS	0.31	0	0	8089	000	10.59	--	--	FCS	N	Y	Y	Y	Y	qam_quick_enable set to 1; new FF; seq circle on performed q-around at 50' using 1st order actuator
0480	16-Apr	Rivers	Kraft	--	SS	0.31	0	0	8089	000	11.04	--	--	FCS	N	Y	Y	Y	Y	pdtnax=20
0489	16-Apr	Rivers	Williams	--	CS	0.31	0	0	3084	000	15.09	--	--	FCS	N	Y	Y	Y	Y	pdtnax back to 0.4
0490	16-Apr	Rivers	Williams	--	CS	0.31	0	0	3084	000	15.13	--	--	FCS	N	Y	Y	Y	Y	pdtnax same as above
0491	16-Apr	Rivers	Williams	--	CS	0.31	0	0	3084	000	15.17	--	--	FCS	N	Y	Y	Y	Y	pdtnax=20
0492	16-Apr	Rivers	Williams	--	CS	0.31	0	0	3385	000	15.21	--	--	FCS	N	Y	Y	Y	Y	1st order actuators for all runs in this session
0493	16-Apr	Rivers	Williams	--	CS	0.31	0	0	3385	000	15.24	--	--	FCS	N	Y	Y	Y	Y	"
0494	16-Apr	Rivers	Williams	--	CS	0.31	0	0	3385	000	15.28	--	--	FCS	N	Y	Y	Y	Y	"
0495	16-Apr	Rivers	Williams	--	CS	0.31	0	0	3385	000	15.30	--	--	FCS	N	Y	Y	Y	Y	"
0496	16-Apr	Rivers	Williams	--	CS	0.31	0	0	3385	000	15.33	--	--	FCS	N	Y	Y	Y	Y	"
0497	16-Apr	Rivers	Williams	--	CS	0.31	0	0	4129	000	15.37	--	--	FCS	N	Y	Y	Y	Y	"
0498	16-Apr	Rivers	Williams	--	CS	0.31	0	0	4129	000	15.40	--	--	FCS	N	Y	Y	Y	Y	"
0500	16-Apr	Rivers	Williams	--	CS	0.31	0	0	4050	000	15.51	--	--	FCS	N	Y	Y	Y	Y	"
0501	16-Apr	Rivers	Williams	--	CS	0.31	0	0	4050	000	15.56	--	--	FCS	N	Y	Y	Y	Y	"
0507	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4050	000	9.28	--	--	FCS	N	Y	Y	Y	Y	"
0508	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4050	000	9.38	--	--	FCS	N	Y	Y	Y	Y	"
0509	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4050	000	9.40	--	--	FCS	N	Y	Y	Y	Y	"
0510	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4069	000	9.43	--	--	FCS	N	Y	Y	Y	Y	"
0511	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4069	000	9.47	--	--	FCS	N	Y	Y	Y	Y	set turb to moderate
0512	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4069	000	9.52	--	--	FCS	N	Y	Y	Y	Y	" (AT retard works well)
0513	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4090	000	9.53	--	--	FCS	N	Y	Y	Y	Y	"

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers	Lat FCS	Long FCS	Task	Config Operator	DASE on	Motor on	Data saved	Notes	Config changes	
															Auditor	Videocam
0514	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4090	000	9.56	--	FCS	N	Y	"
0515	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4090	000	10.00	--	FCS	N	Y	" Todd's new crossfeed gains
0516	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4090	000	10.03	--	FCS	N	Y	" (AT retard works well)
0517	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4090	000	10.06	--	FCS	N	Y	" Crossfeeds back to zero-Rob says Level 1 again
0518	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4090	000	10.09	--	FCS	N	Y	
0519	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4095	000	10.12	--	FCS	N	Y	
0520	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4095	000	10.15	--	FCS	N	Y	
0521	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4095	000	10.18	--	FCS	N	Y	
0522	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4095	000	10.21	--	FCS	N	Y	Todd's new crossfeed gains
0523	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4095	000	10.24	--	FCS	N	Y	Crossfeeds back to zero, NO HUD
0524	17-Apr	Rivers	Williams	--	CS	0.31	0	0	4095	000	10.27	--	FCS	N	Y	
0525	17-Apr	Rivers	Williams	--	CS	0.31	0	0	7035	000	10.31	--	FCS	N	Y	
0527	17-Apr	Rivers	Williams	--	CS	0.31	0	0	7035	000	10.36	--	FCS	N	Y	Nacelle strike on TO rotation
0528	17-Apr	Rivers	Williams	--	CS	0.31	0	0	7035	000	10.39	--	FCS	N	Y	Nacelle strike on TO rotation
0529	17-Apr	Rivers	Williams	--	CS	0.31	0	0	7036	000	10.44	--	FCS	N	Y	
0530	17-Apr	Rivers	Williams	--	CS	0.31	0	0	7036	000	10.48	--	FCS	N	Y	
0531	17-Apr	Rivers	Williams	--	CS	0.31	0	0	7036	000	10.49	--	FCS	N	Y	with 35-kt xwind
0532	17-Apr	Rivers	Williams	--	CS	0.31	0	0	2010	000	10.56	--	FCS	N	Y	
0533	17-Apr	Rivers	Williams	--	CS	0.31	0	0	2010	000	10.58	--	FCS	N	Y	
0539	17-Apr	Kraft	--	--	CS	0.31	0	0	4020	000	14.34	--	FCS	Y	Y	lateral DASE instability?
0540	17-Apr	Kraft	--	--	CS	0.31	0	0	4020	000	14.35	--	FCS	Y	Y	DASE checkout w/ 3rd order actuators
0541	17-Apr	Norman	Williams	--	CS	0.31	0	0	3384	000	14.48	--	FCS	N	Y	Using 3rd order actuators
0542	17-Apr	Norman	Williams	--	CS	0.31	0	0	3384	000	14.54	--	FCS	N	Y	pdtnmax=0.4
0543	17-Apr	Norman	Williams	--	CS	0.31	0	0	3385	000	14.59	--	FCS	N	Y	pdtnmax=20
0544	17-Apr	Norman	Williams	--	CS	0.31	0	0	3385	000	15.02	--	FCS	N	Y	pdtnmax=20
0545	17-Apr	Norman	Williams	--	CS	0.31	0	0	3385	000	15.05	--	FCS	N	Y	pdtnmax=0.4
0546	17-Apr	Norman	Williams	--	CS	0.31	0	0	4129	000	15.10	--	FCS	N	Y	pdtnmax=0.4
0547	17-Apr	Norman	Williams	--	CS	0.31	0	0	4129	000	15.14	--	FCS	N	Y	pdtnmax=0.4
0548	17-Apr	Norman	Williams	--	CS	0.31	0	0	4129	000	15.16	--	FCS	N	Y	pdtnmax=0.4
0549	17-Apr	Norman	Williams	--	CS	0.31	0	0	4090	000	15.20	--	FCS	N	Y	
0550	17-Apr	Norman	Williams	--	CS	0.31	0	0	4090	000	15.23	--	FCS	N	Y	
0551	17-Apr	Norman	Williams	--	CS	0.31	0	0	4090	000	15.27	--	FCS	N	Y	Todd's new crossfeed gains
0552	17-Apr	Norman	Williams	--	CS	0.31	0	0	4090	000	15.30	--	FCS	N	Y	
0553	17-Apr	Norman	Williams	--	CS	0.31	0	0	4095	000	15.34	--	FCS	N	Y	
0554	17-Apr	Norman	Williams	--	CS	0.31	0	0	4095	000	15.36	--	FCS	N	Y	
0555	17-Apr	Norman	Williams	--	CS	0.31	0	0	4095	000	15.39	--	FCS	N	Y	zeroed crossfeeds
0556	17-Apr	Norman	Williams	--	CS	0.31	0	0	4095	000	15.41	--	FCS	N	Y	
0604	21-Apr	Henderson	Goldthorp	--	SS	0.31	0	0	4050	000	9.04	--	SMC	Y	Y	Mild Turb
0605	21-Apr	Henderson	Goldthorp	--	SS	0.31	0	0	4050	000	9.07	--	SMC	Y	Y	no turb - big yahoo
0606	21-Apr	Henderson	Goldthorp	--	SS	0.31	0	0	2011	000	9.11	--	SMC	Y	Y	rcv on
0607	21-Apr	Henderson	Goldthorp	--	SS	0.31	0	0	4020	000	9.14	--	SMC	Y	Y	rcv on
0608	21-Apr	Henderson	Goldthorp	--	SS	0.31	0	0	4020	000	9.17	--	SMC	Y	Y	no turb
0609	21-Apr	Jackson	Borland	--	Turret	0.31	0	0	4020	000	9.26	--	SMC	Y	Y	no turb
0610	21-Apr	Jackson	Borland	--	Turret	0.31	0	0	4020	000	9.33	--	SMC	Y	Y	pitch pulses
0611	21-Apr	Jackson	Borland	--	Turret	0.31	0	0	4020	000	9.34	--	SMC	Y	Y	yaw pulses
0612	21-Apr	Jackson	Borland	--	Turret	0.31	0	0	9020	000	15.20	--	SMC	Y	Y	no turb - duplicate w/ FCS params
0613	21-Apr	Jackson	Borland	--	Turret	0.31	0	0	9020	000	15.34	--	SMC	Y	Y	no turb - duplicate w/ DASE params
0621	21-Apr	Borland	--	--	Turret	0.31	0	0	4020	000	9.34	--	SMC	Y	Y	no turb - duplicate w/ DASE params
0625	21-Apr	Borland	--	--	Turret	0.31	0	0	9020	000	15.18	--	SMC	Y	Y	no good
0626	21-Apr	Borland	--	--	Turret	0.31	0	0	9020	000	15.19	--	SMC	Y	Y	pitch pulses
0627	21-Apr	Borland	--	--	Turret	0.31	0	0	9020	000	15.20	--	SMC	Y	Y	yaw pulses
0628	21-Apr	Borland	--	--	Turret	0.31	0	0	9020	000	15.21	--	SMC	Y	Y	rudder pulses
0629	21-Apr	Rowhani	Henderson	--	SS	0.31	0	0	9020	000	15.27	--	SMC	Y	Y	ktwdcf=0; broke computer
0630	21-Apr	Rowhani	Henderson	--	SS	0.31	0	0	9020	000	15.37	--	SMC	Y	Y	tried to duplicate failure; chin fin wiggling
0631	21-Apr	Borland	Jackson	--	Turret	0.31	0	0	9020	000	16.41	--	SMC	Y	Y	chin fin still messed up
0632	21-Apr	Borland	Jackson	--	Turret	0.33	0	0	9020	000	16.57	--	SMC	Y	Y	lat doublt, pitch doublt
0633	21-Apr	Borland	Jackson	--	Turret	0.33	0	0	9020	000	16.59	--	SMC	Y	Y	floating exception

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operator	DASE on	Motor on	Data saved	Config changes			
														Audie	Vidéo		
0634	21-Apr	Borland	--	--	Turret	0.33	0	0	9020	000	17:02	--	SMC	Y	N	N	
0635	21-Apr	Borland	--	--	Turret	0.33	0	0	9020	000	17:11	--	SMC	Y	N	N	
0672	22-Apr	Goldthorp	--	--	Turret	0.34	0	0	9020	000	11:00	--	SMC	Y	Y	Y	
0673	22-Apr	Goldthorp	--	--	Turret	0.34	0	0	9020	000	11:03	--	SMC	Y	Y	Symmetrical DASE off; accel gain 0.2	
0675	22-Apr	Goldthorp	--	--	Turret	0.34	0	0	9020	000	11:07	--	SMC	Y	Y	Symmetrical DASE off; accel gain 0.2; debugging DCF zero; index off by one for enable flag	
0676	22-Apr	Goldthorp	--	--	Turret	0.34	0	0	9020	000	11:07	--	SMC	Y	N	Symmetrical DASE off; chin fin locked at zero	
0679	22-Apr	Henderson	--	--	Turret	0.34	0	0	9020	000	12:59	--	SMC	Y	N	Symmetrical DASE off; chin fin locked at zero	
0680	22-Apr	Henderson	--	--	Turret	0.34	0	0	9020	000	13:03	--	SMC	Y	N	SIM CRASH	
0681	22-Apr	Henderson	--	--	Turret	0.34	0	0	9020	000	13:07	--	SMC	Y	N	SIM CRASH	
0682	22-Apr	Henderson	--	--	Turret	0.34	0	0	9020	000	13:09	--	SMC	Y	N	SIM WENT UNSTABLE	
0683	22-Apr	Henderson	--	--	Turret	0.34	0	0	9020	000	13:11	--	SMC	Y	N	Symmetrical DASE off; mass coupling scaled down by 0.2 on all surfaces	
0684	22-Apr	Henderson	--	--	Turret	0.34	0	0	A1	9020	000	13:12	--	SMC	Y	N	Symmetrical DASE off; mass coupling scaled down by 0.2 on all surfaces
0685	22-Apr	Henderson	--	--	Turret	0.34	0	0	A1	9020	000	13:17	--	SMC	N	N	Mass coupling scaled down by 0.2 on all surfaces
0686	22-Apr	Henderson	--	--	Turret	0.34	0	0	A1	9020	000	13:17	--	SMC	Y	N	Symmetrical DASE off; mass coupling scaled down by 0.2 on all surfaces
0687	22-Apr	Henderson	--	--	Turret	0.34	0	0	A1	9020	000	--	--	SMC	Y	N	Symmetrical DASE off; mass coupling scaled down by 0.2 on all surfaces
0688	22-Apr	Henderson	--	--	Turret	0.34	0	0	A1	9020	000	13:35	--	SMC	Y	N	80 Hz; 0 Antisymmetric DASE modes; Symmetric DASE off; mass coupling scaled down by 0.2 on surfaces
0689	22-Apr	Henderson	--	--	Turret	0.34	0	0	A1	9020	000	13:36	--	SMC	Y	N	80 Hz; 20 Antisymmetric DASE modes; Symmetric DASE off; mass coupling scaled down by 0.2 on surfaces
0690	22-Apr	Henderson	--	--	Turret	0.34	0	0	A1	9020	000	13:37	--	SMC	Y	N	80 Hz; 20 Antisymmetric DASE modes; Symmetric DASE off; mass coupling scaled down by 0.2 on surfaces
0691	22-Apr	Henderson	--	--	Turret	0.34	0	0	A1	9020	000	13:41	--	SMC	Y	N	80 Hz; 20 Antisymmetric DASE modes; Symmetric DASE off; mass coupling scaled down by 0.2 on surfaces
0692	22-Apr	Henderson	--	--	Turret	0.34	0	0	A1	9020	000	13:44	--	SMC	Y	N	80 Hz; 20 Antisymmetric DASE modes; Symmetrical DASE off; mass coupling scaled down by 0.2 on all surfaces
0693	22-Apr	Henderson	--	--	Turret	0.34	0	0	A1	9020	000	14:02	--	SMC	Y	N	Remove 16, 42 rad Notch Filters in Lat/DIR SMC; 80 Hz; 20 Antisymmetric DASE modes; Symmetrical DASE off; mass coupling scaled down by 0.2 on all surfaces
0694	22-Apr	Henderson	--	--	Turret	0.34	0	0	A1	9020	000	14:05	--	SMC	Y	N	Remove 16, 42 rad Notch Filters in Lat/DIR SMC; 80 Hz; 20 Antisymmetric DASE modes; Symmetrical DASE off; mass coupling scaled down by 0.2 on all surfaces
0695	22-Apr	Henderson	--	--	Turret	0.34	0	0	A1	9020	000	14:16	--	SMC	Y	N	kryerrcf=200; new SMC_B1 gains; 80 Hz; 20 Antisymmetric DASE modes; Symmetrical DASE off; mass coupling scaled down by 0.2 on all surfaces
0696	22-Apr	Henderson	--	--	Turret	0.34	0	0	A1	9020	000	14:18	--	SMC	Y	N	Vary kryerrcf; unstable at kryerrcf=1600; new SMC_B1 gains; 80 Hz; 20 Antisymmetric DASE modes; Symmetrical DASE off; mass coupling scaled down by 0.2 on all surfaces
0697	22-Apr	Henderson	--	--	Turret	0.34	0	0	A1	9020	000	14:19	--	SMC	Y	N	New SMC_B1 gains; 80 Hz; 20 Antisymmetric DASE modes; Symmetrical DASE off; mass coupling scaled down by 0.2 on all surfaces
0698	22-Apr	Borland	--	--	Turret	0.34	0	0	9020	000	14:33	--	SMC	Y	N	New reduced gains in low-pass filter in SMC B1 block diagram	

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operator	Config	DASE on	Data saved	Notes	Config changes
0699	22-Apr	Borland	--	--	Turret	0.34	0	0	9020 000	14.35	--	SMC	Y	N	New SMC_B1 gains; 20 symmetric and 0 anti symmetric
0700	22-Apr	Borland	--	--	Turret	0.34	0	0	9020 000	14.36	--	SMC	Y	N	New SMC_B1 gains; 20 symmetric and 0 anti symmetric
0701	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	14.39	--	SMC	Y	N	New SMC_B1 gains; 20 symmetric and 0 anti symmetric
0708	22-Apr	Henderson	--	--	Turret	0.34	0	A1	9020 000	15.28	--	SMC	Y	N	No RCV movement
0709	22-Apr	Henderson	--	--	Turret	0.34	0	A1	9020 000	15.29	--	SMC	Y	N	kryerrcf=400; new SMC_B1 gains; 80 Hz; 20 Antisymmetric DASE modes; Symmetrical DASE off; mass coupling scaled down by 0.2 on all surfaces; chin fin OFF
0710	22-Apr	Henderson	--	--	Turret	0.34	0	0	9020 000	15.31	--	SMC	Y	N	kryerrcf=800; new SMC_B1 gains; 80 Hz; 20 Antisymmetric DASE modes; Symmetrical DASE off; mass coupling scaled down by 0.2 on all surfaces; chin fin OFF
0718	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.14	--	SMC	Y	N	No ASY modes; 20 Sym Modes; mass coupling off; reading B1 SMC parameter tables
0719	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.18	--	SMC	Y	N	No ASY modes; 20 Sym Modes; mass coupling 0.2;
0720	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.19	--	SMC	Y	N	No ASY modes; 20 Sym Modes; mass coupling 0.2;
0721	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.19	--	SMC	Y	N	No ASY modes; 20 Sym Modes; mass coupling 0.2;
0722	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.20	--	SMC	Y	N	No ASY modes; 20 Sym Modes; mass coupling 1.0; short pulses
0723	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.22	--	SMC	Y	N	No ASY modes; 20 Sym Modes; no pilot
0724	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.22	--	SMC	Y	N	No ASY modes; 20 Sym Modes; long pulses
0725	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.22	--	SMC	Y	N	No ASY modes; 20 Sym Modes; long pulses
0726	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.23	--	SMC	Y	N	No ASY modes; 20 Sym Modes; long pulses
0727	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.23	--	SMC	Y	N	No ASY modes; 20 Sym Modes; long pulses
0728	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.23	--	SMC	Y	N	No ASY modes; 20 Sym Modes; long pulses
0729	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.24	--	SMC	Y	N	No ASY modes; 20 Sym Modes; long pulses
0730	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.28	--	SMC	Y	N	No ASY modes; 20 Sym Modes; kc3_b1=1.5; neutral stable
0731	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.30	--	SMC	Y	N	No ASY modes; 20 Sym Modes; kc3_b1=2.0; unstable (limit cycle)
0732	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.31	--	SMC	Y	N	No ASY modes; 20 Sym Modes; kc3_b1=2.5; turbulence (3 fps)
0733	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.33	--	SMC	Y	N	No ASY modes; 20 Sym Modes; kc3_b1=0.5
0734	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.35	--	SMC	Y	N	No ASY modes; 20 Sym Modes; kc3_b1=1.0; light turbulence (4.5 fps)
0735	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.37	--	SMC	Y	N	No ASY modes; 20 Sym Modes; kc3_b1=1.0; moderate turbulence (4.5 fps)
0736	22-Apr	Borland	--	--	Turret	0.34	B1_0.12	0	9020 000	16.38	--	SMC	Y	N	No ASY modes; 20 Sym Modes; kc3_b1=1.0; heavy turbulence (6 fps)
0737	22-Apr	Borland	--	--	Turret	0.34	0	0	9020 000	16.40	--	SMC	Y	N	No ASY modes; 20 Sym Modes; SMC off; heavy turbulence (6 fps)
0738	22-Apr	Borland	--	--	Turret	0.34	0	0	9020 000	16.41	--	SMC	Y	N	No ASY modes; 20 Sym Modes; SMC off; moderate turbulence (4.5 fps)
0739	22-Apr	Borland	--	--	Turret	0.34	0	0	9020 000	16.42	--	SMC	Y	N	No ASY modes; 20 Sym Modes; SMC off; light turbulence (3 fps)
0740	22-Apr	Henderson	--	--	Turret	0.34	0	A1	9020 000	16.46	--	SMC	Y	N	kryerrcf=200; 6.4 Hz; 20 Antisymmetric DASE modes; Symmetrical DASE off; mass coupling scaled down by 0.2 on all surfaces; no BP or ndch1

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Incep-tor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operate	Config Operator	Audi-o	DASE on	Motor on	Data saved	Notes	Config changes
0741	22-Apr	Henderson	--	--	Turret	0.34	0	A1	9020	000	16.48	--	SMC	Y	N	Y	knyerrcf=200; 64 Hz; 20 Antisymmetric DASE modes; Symmetrical DASE off; mass coupling scaled 1.0 on all surfaces; no BP or notch filters
0742	22-Apr	Henderson	--	--	Turret	0.34	0	A1	9020	000	16.51	--	SMC	Y	N	Y	knyerrcf=800; 64 Hz; 20 Antisymmetric DASE modes; Symmetrical DASE off; mass coupling scaled 1.0 on all surfaces; no BP or notch filters
0743	22-Apr	Henderson	--	--	Turret	0.34	0	A1	9020	000	16.52	--	SMC	Y	N	Y	knyerrcf=1600; 64 Hz; 20 Antisymmetric DASE modes; Symmetrical DASE off; mass coupling scaled 1.0 on all surfaces; no BP or notch filters
0744	22-Apr	Henderson	--	--	Turret	0.34	0	A1	9020	000	16.53	--	SMC	Y	N	Y	knyerrcf=16000; 64 Hz; 20 Antisymmetric DASE modes; Symmetrical DASE off; mass coupling scaled 1.0 on all surfaces; no BP or notch filters; unstable limit cycle
0745	22-Apr	Henderson	--	--	Turret	0.34	0	A1	9020	000	16.54	--	SMC	Y	N	Y	knyerrcf=3200; 64 Hz; 20 Antisymmetric DASE modes; Symmetrical DASE off; mass coupling scaled 1.0 on all surfaces; no BP or notch filters;
0746	22-Apr	Borland	--	--	Turret	0.34	B1_0.12_0	A1	9020	000	16.58	--	SMC	Y	N	Y	knyerrcf=45000; 64 Hz; 20 ASY modes; No SYM modes; mass coupling scaled 1.0 on all surfaces; 4.2 rad/s notch filter; unstable
0767	23-Apr	Henderson	--	--	Turret	0.34	0	A1	9020	000	8.46	--	SMC	Y	N	Y	Full-up test with both axes SMC
0768	23-Apr	Henderson	--	--	Turret	0.34	0	A1	9020	000	8.48	--	SMC	Y	N	Y	knyerrcf=45000; 64 Hz; 20 ASY modes; No SYM modes; mass coupling scaled 1.0 on all surfaces; 4.2 rad/s notch filter; unstable
0769	23-Apr	Henderson	--	--	Turret	0.34	0	A1	9020	000	8.50	--	SMC	Y	N	Y	knyerrcf=45000; 64 Hz; 20 ASY modes; No SYM modes; mass coupling scaled 1.0 on all surfaces; 4.2 rad/s notch filter; unstable
0770	23-Apr	Henderson	--	--	Turret	0.34	0	A1	9020	000	8.54	--	SMC	Y	N	Y	qbbaque run
0771	23-Apr	Henderson	--	--	Turret	0.34	0	A1	9020	000	8.54	--	SMC	Y	N	Y	knyerrcf=3200; 64 Hz; 20 ASY modes; No SYM modes; mass coupling scaled 1.0 on all surfaces; no notch filter; stable
0772	23-Apr	Henderson	--	--	Turret	0.34	0	A1	9020	000	8.55	--	SMC	Y	N	Y	knyerrcf=8000; 64 Hz; 20 ASY modes; No SYM modes; mass coupling scaled 1.0 on all surfaces; no notch filter; stable
0773	23-Apr	Henderson	--	--	Turret	0.34	0	A1	9020	000	8.56	--	SMC	Y	N	Y	knyerrcf=4000; 64 Hz; 20 ASY modes; No SYM modes; mass coupling scaled 1.0 on all surfaces; no notch filter; unstable
0774	23-Apr	Henderson	--	--	Turret	0.34	0	A1	9020	000	8.58	--	SMC	Y	N	Y	knyerrcf=4000; 64 Hz; 20 ASY modes; No SYM modes; mass coupling scaled 1.0 on all surfaces; no notch filter; unstable; 6 lps turb
0781	23-Apr	Rowhani	--	--	SS	0.34	0	Custom	0	Custom	9.38	--	SMC	N	N	N	potential gamma checkout at 10K, 250 Kt, zero turb
0782	23-Apr	Rowhani	--	--	SS	0.34	0	Custom	0	Custom	9.40	--	SMC	N	N	N	potential gamma checkout at 10K, 250 Kt, zero turb
0783	23-Apr	Rowhani	--	--	SS	0.34	0	Custom	0	Custom	9.41	--	SMC	N	N	N	potential gamma checkout at 10K, 250 Kt, zero turb
0784	23-Apr	Rowhani	--	--	SS	0.34	0	Custom	0	Custom	9.45	--	SMC	N	N	N	potential gamma checkout at 10K, 250 Kt, zero turb
0785	23-Apr	Rowhani	--	--	SS	0.34	0	Custom	0	Custom	9.48	--	SMC	N	N	Y	potential gamma checkout at 10K, 250 Kt, zero turb
0786	23-Apr	Rowhani	--	--	SS	0.34	0	Custom	0	Custom	9.50	--	SMC	N	N	Y	potential gamma checkout at 10K, 250 Kt, zero turb
0787	23-Apr	Rowhani	--	--	SS	0.34	0	Custom	0	Custom	9.52	--	SMC	N	N	Y	potential gamma checkout at 10K, 250 Kt, zero turb
0788	23-Apr	Rowhani	--	--	SS	0.34	0	Custom	0	Custom	9.53	--	SMC	N	N	Y	potential gamma checkout at 10K, 250 Kt, zero turb
0789	23-Apr	Rowhani	--	--	SS	0.34	0	0	4050	000	9.55	--	SMC	N	N	Y	potential gamma checkout at 10K, 250 Kt

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Incep-tor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operator	Config Operate	DASE Test	Motor on	Data saved	Notes	Config changes
										Audi	Vide	09	09			
0790	23-Apr	Rowhani	--	--	SS	0.34	0	0	4050	000	9.57	--	SMC	N	Y	potential gamma checkout at 10K, 250 Kt, zero turb
0791	23-Apr	Rowhani	--	--	SS	0.34	0	0	4050	000	9.59	--	SMC	N	Y	potential gamma checkout at 10K, 250 Kt, zero turb, control debug params
0792	23-Apr	Rowhani	--	--	SS	0.34	0	0	4050	000	10.05	--	SMC	N	Y	potential gamma checkout at 10K, 250 Kt, zero turb, control debug params
0793	23-Apr	Rowhani	--	--	SS	0.34	0	0	4050	000	10.07	--	SMC	N	Y	potential gamma checkout at 10K, 250 Kt, zero turb, control debug params
0794	23-Apr	Goldthorp	--	Turret	0.34	0	A1	9020	000	10.14	--	SMC	Y	N	3.0; control debug params knyerrcf=3200; 64 Hz; 20 ASY modes; No SYM modes; mass coupling scaled 1.0 on all surfaces;	
0795	23-Apr	Henderson	--	CS	0.34	0	A1	9020	000	10.16	--	SMC	Y	N	knyerrcf=3200; 64 Hz; 20 ASY modes; No SYM modes; mass coupling scaled 1.0 on all surfaces;	
0796	23-Apr	Henderson	--	CS	0.34	0	A1	9020	000	10.21	--	SMC	Y	Y	no notch filter; stable knyerrcf=3200; 64 Hz; 20 ASY modes; No SYM modes; mass coupling scaled 1.0 on all surfaces;	
0797	23-Apr	Henderson	--	CS	0.34	0	A1	9020	000	10.25	--	SMC	Y	N	no notch filter; flew in motion knyerrcf=3200; 64 Hz; 20 ASY modes; No SYM modes; mass coupling scaled 1.0 on all surfaces;	
0798	23-Apr	Henderson	--	CS	0.34	0	A1	9020	000	10.35	--	SMC	Y	Y	no notch filter; flew in motion knyerrcf=3200; 64 Hz; 20 ASY modes; No SYM modes; mass coupling scaled 1.0 on all surfaces;	
0799	23-Apr	Henderson	--	CS	0.34	0	0	9020	000	10.40	--	SMC	Y	Y	chin fin locked out in mixer and SMC off	
0800	23-Apr	Henderson	--	CS	0.34	0	A1	9020	000	10.44	--	SMC	Y	N	tried out light turbulence - fixed	
0801	23-Apr	Henderson	--	CS	0.34	0	A1	9020	000	10.48	--	SMC	Y	Y	tried out light turbulence - motion	
0802	23-Apr	Henderson	--	CS	0.34	0	A1	9020	000	10.53	--	SMC	Y	Y	tried out light turbulence - motion	
0803	23-Apr	Henderson	--	CS	0.34	0	A1	9020	000	10.55	--	SMC	Y	Y	Moderate turb - fixed base	
0804	23-Apr	Henderson	--	CS	0.34	0	A1	9020	000	10.57	--	SMC	Y	N	Moderate turb - fixed base	
0816	23-Apr	Goldthorp	--	Turret	0.35	0	A1	9020	000	15.37	--	SMC	Y	N	Turret	
0817	23-Apr	Goldthorp	--	Turret	0.35	0	A1	9020	000	15.39	--	SMC	Y	N	Turret	
0818	23-Apr	Goldthorp	--	Turret	0.35	0	A1	9020	000	15.39	--	SMC	Y	N	Turret	
0819	23-Apr	Goldthorp	--	Turret	0.35	0	A1	9020	000	15.40	--	SMC	Y	N	Turret	
0820	23-Apr	Rowhani	--	Turret	0.00	0	0	9020	000	15.48	--	SMC	Y	Y	FCS off, turb off, ASY modes off, aft pulse	
0821	23-Apr	Borland	--	Turret	0.00	0	0	9020	000	15.49	--	SMC	Y	N	FCS off, turb off, ASY modes off, fwd pulse	
0822	23-Apr	Borland	--	Turret	0.00	0	0	9020	000	15.50	--	SMC	Y	N	FCS off, turb off, ASY modes off, fwd/aft doublet	
0823	23-Apr	Borland	--	Turret	0.35	0	0	9020	000	15.59	--	SMC	Y	N	FCS on, turb off, SMC off, 2 sym modes only: dove into ground	
0824	23-Apr	Borland	--	Turret	0.35	0	0	9020	000	16.00	--	SMC	Y	N	FCS on, turb off, SMC off, 2 sym modes only: dove into ground	
0825	23-Apr	Borland	--	Turret	0.35	0	0	9020	000	16.02	--	SMC	Y	N	FCS on, turb off, SMC off, 20 sym modes	
0826	23-Apr	Borland	--	Turret	0.35	0	0	9020	000	16.02	--	SMC	Y	N	FCS on, turb off, SMC off, 20 sym modes: pitch doublet	
0827	23-Apr	Borland	--	Turret	0.35	0	0	9020	000	16.04	--	SMC	Y	N	FCS on, turb off, SMC off, 10 sym modes: unstable	
0828	23-Apr	Borland	--	Turret	0.35	0	0	9020	000	16.09	--	SMC	Y	N	FCS on, turb off, SMC off, 10 sym modes: sim	
0829	23-Apr	Borland	--	Turret	0.35	0	0	9020	000	16.13	--	SMC	Y	N	FCS on, turb off, SMC off, 10 sym modes: sim	
0830	23-Apr	Borland	--	Turret	0.35	0	0	9020	000	16.14	--	SMC	N	Y	FCS on, turb off, SMC off, zero DASE modes, pitch doublets: stable	
0831	23-Apr	Borland	--	Turret	0.35	0	0	9020	000	16.15	--	SMC	Y	N	FCS on, turb off, SMC off, 20 sym modes; aft pitch	
0832	23-Apr	Borland	--	Turret	0.35	0	0	9020	000	16.17	--	SMC	Y	N	but stable; 12 deg stab	
0833	23-Apr	Borland	--	Turret	0.35	0	0	9020	000	16.20	--	SMC	Y	N	FCS on, turb off, SMC off, 1 sym mode: trim at 0 elev; goes to 12 elev	

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0834	23-Apr	Borland	--	--	Turret	0.35	0	0	9020	000	16.20	--	SMC	Y	N	Y	FCS on, turb off, SMC off, 2 sym modes; pitch r down
0835	23-Apr	Borland	--	--	Turret	0.35	0	0	9020	000	16.22	--	SMC	Y	N	Y	FCS on, turb off, SMC off, 3 sym modes; pitch r down
0839	23-Apr	Borland	--	--	Turret	0.35	0	0	9020	000	16.35	--	SMC	Y	N	Y	FCS on, turb off, SMC off, 20 sym modes, accel terms off
0874	27-Apr	Coleman	Ray	--	CS	0.35	0	0	4020	000	10.22	--	FCS	N	Y	N	Went motion off for some portion; changed tau_thrust_err to 5.0 and 2.0 for portion.
0875	27-Apr	Norman	Borland	--	CS	0.35	0	0	4020	000	10.51	--	FCS	N	Y	N	
0879	27-Apr	Coleman	Ray	--	CS	0.35	0	0	4050	000	14.44	--	FCS	N	Y	N	
0880	27-Apr	Coleman	Ray	--	CS	0.35	0	0	4069	000	14.49	--	FCS	N	Y	N	
0881	27-Apr	Coleman	Ray	--	CS	0.35	0	0	4069	000	14.53	--	FCS	N	Y	N	
0882	27-Apr	Coleman	Ray	--	CS	0.35	0	0	4069	000	14.55	--	FCS	N	Y	N	
0883	27-Apr	Coleman	Ray	--	CS	0.35	0	0	4069	000	14.57	--	FCS	N	Y	N	
0884	27-Apr	Coleman	Ray	--	CS	0.35	0	0	Custom	000	15.01	--	FCS	N	Y	N	IC at 10K 250 Kt level
0885	27-Apr	Coleman	Ray	--	CS	0.35	0	0	Custom	000	15.03	--	FCS	N	Y	N	IC at 10K, 250 Kt level; kgamlimmb=-0.0873;
0886	27-Apr	Coleman	Ray	--	CS	0.35	0	0	Custom	000	15.06	--	FCS	N	Y	N	kglusub=17
0887	27-Apr	Coleman	Ray	--	CS	0.35	0	0	Custom	000	15.08	--	FCS	N	Y	N	IC at 10K, 250 Kt level; kgamlimmb=-0.0873; kglusub=17
0888	27-Apr	Coleman	Ray	--	CS	0.35	0	0	Custom	000	15.10	--	FCS	N	Y	Y	IC at 10K, 250 Kt level; kgamlimmb=-0.0873; kglusub=17
0889	27-Apr	Coleman	Ray	--	CS	0.35	0	0	Custom	000	15.11	--	FCS	N	Y	N	IC at 10K, 250 Kt level; kgamlimmb=-0.0873; kglusub=17
0890	27-Apr	Coleman	Ray	--	CS	0.35	0	0	Custom	000	15.14	--	FCS	N	Y	N	IC at 10K, 250 Kt level; kgamlimmb=-0.0873; kglusub=17
0891	27-Apr	Coleman	Ray	--	CS	0.35	0	0	Custom	000	15.20	--	FCS	N	Y	N	IC at 10K, 250 Kt level; kgamlimmb=-0.0873; kglusub=17
0892	27-Apr	Coleman	Ray	--	CS	0.35	0	0	Custom	000	15.34	--	FCS	N	Y	N	IC at 10K, 250 Kt level; kgamlimmb=-0.0873; kglusub=17
0893	27-Apr	Ray	Coleman	--	SS	0.35	0	0	4050	000	15.49	--	FCS	N	Y	N	kgamlimmb=-0.0873; kglusub=17
0894	27-Apr	Ray	Coleman	--	SS	0.35	0	0	4050	000	15.51	--	FCS	N	Y	N	kgamlimmb=-0.0873; kglusub=17
0895	27-Apr	Ray	Coleman	--	SS	0.35	0	0	4050	000	15.54	--	FCS	N	Y	N	kgamlimmb=-0.0873; kglusub=17
0896	27-Apr	Ray	Coleman	--	CS	0.35	0	0	4050	000	15.55	--	FCS	N	Y	N	kgamlimmb=-0.0873; kglusub=17
0897	27-Apr	Ray	Coleman	--	CS	0.35	0	0	4050	000	15.59	--	FCS	N	Y	N	kgamlimmb=-0.0873; kglusub=17
0898	27-Apr	Ray	Coleman	--	CS	0.35	0	0	4050	000	16.02	--	FCS	N	Y	N	kgamlimmb=-0.0873; kglusub=17
0899	27-Apr	Ray	Coleman	--	SS	0.35	0	0	4050	000	16.04	--	FCS	N	Y	N	kgamlimmb=-0.0873; kglusub=17
0900	27-Apr	Ray	Coleman	--	SS	0.35	0	0	4050	000	16.05	--	FCS	N	Y	N	kgamlimmb=-0.0873; kglusub=17
0901	27-Apr	Ray	Coleman	--	SS	0.35	0	0	4050	000	16.07	--	FCS	N	Y	N	kgamlimmb=-0.0873; kglusub=17
0902	27-Apr	Ray	Coleman	--	SS	0.35	0	0	4050	000	16.10	--	FCS	N	Y	N	kgamlimmb=-0.0873; kglusub=17; rolls
0903	27-Apr	Ray	Coleman	--	CS	0.35	0	0	4050	000	16.14	--	FCS	N	Y	N	IC at 10K, 250 Kt level; kgamlimmb=-0.0873; kglusub=17
0904	27-Apr	Ray	Coleman	--	CS	0.35	0	0	4050	000	16.17	--	FCS	N	Y	N	IC at 10K, 250 Kt level; kgamlimmb=-0.0873; kglusub=17
0933	29-Apr	Hardy	Derry	--	SS	0.35	0	0	4050	000	16.54	--	FCS	N	Y	N	Flare cue tuning
0939	29-Apr	Hardy	Derry	--	SS	0.35	0	0	4050	000	16.55	--	FCS	N	Y	N	Flare cue tuning
0940	29-Apr	Hardy	Derry	--	SS	0.35	0	0	4050	000	16.57	--	FCS	N	Y	N	Flare cue tuning
0941	29-Apr	Hardy	Derry	--	SS	0.35	0	0	4050	000	16.58	--	FCS	N	Y	N	Flare cue tuning
0949	30-Apr	Borland	Coleman	--	Turret	0.35	0	0	9020	000	14.10	--	SMC	Y	N	Y	Potential gamma tuning
0954	30-Apr	Borland	Coleman	--	Turret	0.35	0	0	9020	000	14.12	--	SMC	Y	N	Y	no asym modes, Column input
0955	30-Apr	Borland	Coleman	--	B1_0.12	0	0	0	9020	000	14.14	--	SMC	Y	N	Y	no sym modes, Wheel Input
0956	30-Apr	Borland	Coleman	--	B1_0.12	0	0	0	9020	000	14.16	--	SMC	Y	N	Y	no asym modes, column input
0957	30-Apr	Borland	Coleman	--	B1_0.12	0	0	0	A1	000	14.18	--	SMC	Y	N	Y	no asym modes, wheel input
0958	30-Apr	Borland	Coleman	--	Turret	0.35	0	0	9020	000	14.20	--	SMC	Y	N	Y	20/20 column and wheel input
0959	30-Apr	Borland	Coleman	--	Turret	0.35	0	0	9020	000	14.22	--	SMC	Y	N	Y	no asym modes, dain = 0.5 Column input
0960	30-Apr	Borland	Coleman	--	Turret	0.35	0	0	9020	000	14.24	--	SMC	Y	N	Y	no asym modes, dain = 0.25 Column input
0961	30-Apr	Borland	Coleman	--	Turret	0.35	0	0	9020	000	14.24	--	SMC	Y	N	Y	

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers	Long FCS	Lat FCS	Task	Config Operator	DASE on	Motor on	Data saved	Notes	Config changes		
															Audi	Vide	
0962	30-Apr	Borland	--	--	Turret	0.35	B1_0.12	A1	9020	000	14:26	--	SMC	Y	N	Y	20/20, column and wheel input
0963	30-Apr	Borland	--	--	Turret	0.35	B1_0.12	A1	9020	000	14:28	--	SMC	Y	N	Y	20/20, column and wheel input; it turb
0964	30-Apr	Borland	--	--	Turret	0.35	B1_0.12	A1	9020	000	14:30	--	SMC	Y	N	Y	20/20, column and wheel input; mod turb
0965	30-Apr	Borland	--	--	Turret	0.35	0	0	9020	000	14:32	--	SMC	Y	N	Y	20/20, column and wheel input; mod turb
0966	30-Apr	Borland	--	--	SS	0.35	B1_0.12	0	9020	000	14:34	--	SMC	Y	N	Y	20/20, column and wheel input; it turb
0967	30-Apr	Derry	--	--	SS	0.35	B1_0.12	0	9020	000	15:08	--	SMC	Y	N	Y	20/20 long run, limit cycle at end
0968	30-Apr	Derry	--	--	SS	0.35	B1_0.12	A1	9020	000	15:14	--	SMC	Y	N	Y	20/20
0969	30-Apr	Derry	--	--	SS	0.35	B1_0.12	A1	9020	000	15:18	--	SMC	Y	N	Y	no asym
0970	30-Apr	Derry	--	--	SS	0.35	B1_0.12	A1	9020	000	15:25	--	SMC	Y	N	N	20/20
0971	30-Apr	Derry	--	--	SS	0.35	B1_0.12	0	9020	000	15:31	--	SMC	Y	N	N	20/20
0972	30-Apr	Derry	--	--	SS	0.35	B1_0.12	A1	9020	000	15:42	--	SMC	Y	N	Y	20/20
0973	30-Apr	Derry	--	--	SS	0.35	B1_0.12	0	9020	000	15:43	--	SMC	Y	N	Y	20/20
0974	30-Apr	Derry	--	--	SS	0.35	B1_0.12	A1	9020	000	15:44	--	SMC	Y	N	N	20/20
0975	30-Apr	Derry	--	--	SS	0.35	B1_0.12	A1	9020	000	15:46	--	SMC	Y	N	N	20/20
0976	30-Apr	Derry	--	--	SS	0.35	B1_0.12	0	9020	000	15:51	--	SMC	Y	N	Y	20/20 light turb
0977	30-Apr	Derry	--	--	SS	0.35	B1_0.12	A1	9020	000	15:53	--	SMC	Y	Y	Y	20/20, light turb
0978	30-Apr	Derry	--	--	SS	0.35	B1_0.12	0	9020	000	15:59	--	SMC	Y	Y	Y	20/20, light turb
0979	30-Apr	Derry	--	--	SS	0.35	B1_0.12	A1	9020	000	16:16	--	SMC	Y	Y	Y	20/20, no turb
0980	30-Apr	Hardy	--	--	SS	0.35	B1_0.12	0	9020	000	16:17	--	SMC	Y	N	N	20/20, no turb
0981	30-Apr	Hardy	--	--	SS	0.35	B1_0.12	A1	9020	000	16:20	--	SMC	Y	N	N	20/20, no turb
0982	30-Apr	Hardy	--	--	SS	0.35	B1_0.12	A1	9020	000	16:25	--	SMC	Y	Y	Y	20/20, no turb
0983	30-Apr	Hardy	--	--	SS	0.35	B1_0.12	A1	9020	000	16:30	--	SMC	Y	Y	Y	20/20, light turb
0984	30-Apr	Hardy	--	--	SS	0.35	B1_0.12	A1	9020	000	16:34	--	SMC	Y	Y	Y	20/20, light turb
0985	30-Apr	Hardy	--	--	CS	0.35	B1_0.12	A1	9020	000	16:42	--	SMC	Y	Y	Y	20/20, light turb, saw bio centerstick coupling
0986	30-Apr	Hardy	--	--	CS	0.35	B1_0.12	A1	9020	000	16:45	--	SMC	Y	Y	Y	20/20, light turb, saw bare centerstick coupling
0987	30-Apr	Derry	--	--	SS	0.35	B1_0.12	0	9020	000	16:51	--	SMC	Y	Y	N	20/20, no turb
0988	30-Apr	Derry	--	--	SS	0.35	B1_0.12	A1	9020	000	16:55	--	SMC	Y	Y	N	20/20, no turb
0995	1-May	Borland	--	--	Turret	0.35	B1_0.13	0	9020	000	9:00	--	SMC	Y	N	N	20/20, unstable
0997	1-May	Borland	--	--	Turret	0.35	B1_0.13	0	9020	000	9:02	--	SMC	Y	N	N	20/20, unstable
0998	1-May	Borland	--	--	Turret	0.35	B1_0.13	0	9020	000	9:05	--	SMC	Y	N	N	big wahoo - gear down
0999	1-May	Borland	--	--	Turret	0.35	B1_0.12	0	9020	000	9:06	--	SMC	Y	N	N	big wahoo - gear down
1000	1-May	Borland	--	--	Turret	0.35	B1_0.12	0	9020	000	9:08	--	SMC	Y	N	N	OK - gear up, but unstable
1001	1-May	Borland	--	--	Turret	0.35	B1_0.13	0	9020	000	9:11	--	SMC	Y	N	N	big wahoo - auto hold on operate
1002	1-May	Borland	--	--	Turret	0.35	B1_0.13	0	9020	000	9:12	--	SMC	Y	N	N	big wahoo - defeated autohold, saw limit cycle
1003	1-May	Borland	--	--	Turret	0.35	B1_0.13	0	9020	000	9:14	--	SMC	Y	N	N	kc3 = 0..1; still unstable
1004	1-May	Borland	--	--	Turret	0.35	B1_0.13	0	9020	000	9:15	--	SMC	Y	N	N	kc3 = 0..1
1005	1-May	Borland	--	--	Turret	0.35	B1_0.13	0	9020	000	9:20	--	SMC	Y	N	N	old B1 with kc3=0..33
1006	1-May	Borland	--	--	Turret	0.35	B1_0.12	0	9020	000	9:21	--	SMC	Y	N	N	kc3=0..25
1007	1-May	Borland	--	--	Turret	0.35	B1_0.12	0	9020	000	9:21	--	SMC	Y	N	N	kc3=0..25
1008	1-May	RBailey	--	--	Turret	0.35	B1_0.12	0	9020	000	9:22	--	SMC	Y	N	N	REB checkout centerstick characteristics
1009	1-May	RBailey	--	--	CS	0.35	B1_0.13	0	4020	000	9:32	--	APB	Y	Y	N	roll hold debug for Todd
1010	1-May	RBailey	--	--	CS	0.35	B1_0.13	0	4020	000	9:38	--	APB	Y	Y	Y	zero turb: wing overs, pull ups/push overs, long freq sweeps
1011	1-May	RBailey	--	--	CS	0.35	B1_0.13	0	4020	000	9:40	--	APB	Y	Y	Y	zero turb: roll freq sweep
1012	1-May	RBailey	--	--	CS	0.35	0	0	4020	000	9:46	--	APB	Y	Y	Y	zero turb; roll freq sweep
1013	1-May	RBailey	--	--	CS	0.35	0	0	4020	000	9:48	--	APB	Y	N	N	zero turb;
1014	1-May	RBailey	--	--	SS	0.35	0	0	4050	000	10:02	--	APB	Y	N	N	hdotm -4..7, hdotmg -2..6
1015	1-May	RBailey	--	--	SS	0.35	0	0	4050	000	10:07	--	APB	Y	N	N	IC at 200 ft: -2..9/-2..3 pilot/gear
1016	1-May	RBailey	--	--	SS	0.35	0	0	4050	000	10:11	--	APB	Y	N	N	hdotm -1..9, hdotmg -1..6, X 1125
1017	1-May	RBailey	--	--	SS	0.35	0	0	4050	000	10:13	--	APB	Y	N	N	hdotm -3..0, hdotmg -2..5, X 1143
1018	1-May	RBailey	--	--	SS	0.35	0	0	4050	000	10:14	--	APB	Y	N	N	hdotm -1..4, hdotmg -1..7, X 1118
1019	1-May	RBailey	--	--	SS	0.35	0	0	4050	000	10:17	--	APB	Y	N	N	3..2 hdotm -2..5, X 1605..3
1020	1-May	RBailey	--	--	SS	0.35	0	0	4050	000	10:18	--	APB	Y	N	N	kcflare = 0..4; attflare -7..5; flarehold -0..5; hdotp -2..8 hdotmg -2..3 X 1625

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operator	Config DASE	Test Motor on	Data saved	Notes	Config changes
1021	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:19	--	AP8	Y	N
1022	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:25	--	AP8	Y	N
1023	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:27	--	AP8	Y	N
1024	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:28	--	AP8	Y	N
1025	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:29	--	AP8	Y	N
1026	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:31	--	AP8	Y	N
1027	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:34	--	AP8	Y	N
1028	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:35	--	AP8	Y	N
1029	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:36	--	AP8	Y	N
1030	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:43	--	AP8	Y	N
1031	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:44	--	AP8	Y	N
1032	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:46	--	AP8	Y	N
1033	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:48	--	AP8	Y	N
1034	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:49	--	AP8	Y	N
1035	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:51	--	AP8	Y	N
1036	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:52	--	AP8	Y	N
1037	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:54	--	AP8	Y	N
1038	1-May	Hardy	Jackson	--	SS	0.35	0	0	4050	000	10:55	--	AP8	Y	N
1039	1-May	Hardy	Borland	--	Turret	0.38	0	0	4050	000	10:56	--	AP8	Y	N
1043	1-May	Borland	--	--	Turret	0.38	0	0	9020	000	14:33	--	SMC	Y	N
1044	1-May	Borland	--	--	Turret	0.38	0	0	9021	000	14:38	--	SMC	Y	N
1045	1-May	Borland	--	--	Turret	0.38	B1_0.16	0	9020	000	14:38	--	SMC	Y	N
1046	1-May	Borland	--	--	Turret	0.38	B1_0.16	0	9020	000	14:45	--	SMC	Y	N
1047	1-May	Borland	--	--	Turret	0.38	B1_0.16	0	9020	000	14:46	--	SMC	Y	N
1048	1-May	Borland	--	--	Turret	0.38	B1_0.16	0	9020	000	14:47	--	SMC	Y	N
1049	1-May	Borland	--	--	Turret	0.38	B1_0.16	0	9020	000	14:48	--	SMC	Y	N
1050	1-May	Borland	--	--	Turret	0.38	B1_0.16	0	9020	000	14:51	--	SMC	Y	N
1051	1-May	Borland	--	--	Turret	0.38	B1_0.16	0	9020	000	14:58	--	SMC	Y	N
1052	1-May	Borland	--	--	Turret	0.38	B1_0.16	0	9020	000	15:34	--	AP8	N	N
1054	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	15:36	--	AP8	N	N
1055	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	15:38	--	AP8	N	N
1056	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	15:39	--	AP8	N	N
1057	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	15:41	--	AP8	N	N
1058	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	15:43	--	AP8	N	N
1059	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	15:47	--	AP8	N	N
1060	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	15:51	--	AP8	N	N
1061	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	15:52	--	AP8	N	N
1062	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	15:52	--	AP8	N	N

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operator	Config Operator	DASE Test	Motor on	Data saved	Data Notes	Config changes
1063	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	15.53	--	AP8	N	N	200 ft IC, no turb; half flare bias: kf81 = -0.275;
1064	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	15.55	--	AP8	N	N	200 ft IC, 3 fps turb; kf81 = -0.275; kf80=1.1
1065	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	15.57	--	AP8	N	N	200 ft IC, 3 fps turb; kf81 = -0.275; kf80=1.1
1066	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	15.59	--	AP8	N	Y	200 ft IC, no turb; kf81 = -0.275; kf80=1.1
1067	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	16.02	--	AP8	N	N	200 ft IC, no turb; kf81 = -0.275; kf80=1.1, kf0=0.045, altflare -6.11, flarehold -0.5
1068	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	16.04	--	AP8	N	Y	200 ft IC, no turb; kf81 = -0.275; kf80=1.1, kf0=0.045, altflare -6.11, flarehold -0.5
1069	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	16.06	--	AP8	N	N	200 ft IC, 3 fps turb; kf81 = -0.275; kf80=1.1, kf80=0.045, altflare -6.11, flarehold -0.5
1070	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	16.07	--	AP8	N	N	200 ft IC, 3 fps turb; kf81 = -0.275; kf80=1.1, kf80=0.045, altflare -6.11, flarehold -0.5
1071	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	16.09	--	AP8	N	N	200 ft IC, 3 fps turb; kf81 = -0.25 flare bias: kf81 = -0.1375; kf80=0.55; kf80=0.045, altflare -6.11, flarehold -0.5
1072	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	16.10	--	AP8	N	N	200 ft IC, 3 fps turb; kf81 = -0.25 flare bias: kf81 = -0.1375; kf80=0.55; kf80=0.045, altflare -6.11, flarehold -0.5
1073	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	16.12	--	AP8	N	N	200 ft IC, 3 fps turb; no flare bias: kf81 = 0; kf80=0; kf80=0.045, altflare -6.11, flarehold -0.5
1074	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	16.15	--	AP8	N	N	200 ft IC, 3 fps turb; no flare bias: fbias_enable=0; kf80=0.045, altflare -6.11, flarehold -0.5
1075	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	16.17	--	AP8	N	N	200 ft IC, no turb; no flare bias: fbias_enable=0; kf80=0.045, altflare -6.11, flarehold -0.5
1076	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	16.18	--	AP8	N	N	200 ft IC, no turb; no flare bias: fbias_enable=0; kf80=0.045, altflare -6.11, flarehold -0.5
1077	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	16.20	--	AP8	N	Y	200 ft IC, no turb; no flare bias: fbias_enable=0; kf80=0.045, altflare -6.11, flarehold -0.5, flarebias still present
1078	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	16.22	--	AP8	N	N	200 ft IC, no turb; no flare bias: fbias_enable=0; kf80=0.045, altflare -6.11, flarehold -0.3
1079	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	16.23	--	AP8	N	N	200 ft IC, no turb; looked at Ed's potent gammA/T transitions.
1080	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	16.31	--	AP8	N	N	200 ft IC, no turb; looked at Ed's potent gammA/T transitions.
1081	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	16.32	--	AP8	N	Y	200 ft IC, no turb; looked at Ed's potent gammA/T transitions.
1082	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	--	--	AP8	N	N	200 ft IC, 3 fps turb; no flare bias: fbias_enable=0; kf80=0.045, altflare -6.11, flarehold -0.5
1083	1-May	Jackson	--	--	Turret	0.35	0	0	4050	000	16.56	--	AP8	N	N	Touchdown with nose bounce for Ray K.
1084	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	--	--	AP8	N	N	200 ft IC, 3 fps turb; no flare bias: fbias_enable=0; kf80=0.045, altflare -6.11, flarehold -0.5
1085	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	--	--	AP8	N	N	200 ft IC, 3 fps turb; no flare bias: fbias_enable=0; kf80=0.045, altflare -6.11, flarehold -0.5
1086	1-May	Hardy	--	--	SS	0.35	0	0	4050	000	--	--	AP8	N	N	200 ft IC, 3 fps turb; no flare bias: fbias_enable=0; kf80=0.045, altflare -6.11, flarehold -0.5
1087	4-May	vonKlein	--	--	SS	0.35	0	0	4020	000	--	--	FCS	N	Y	right roll - hardover?
1086	4-May	vonKlein	--	--	SS	0.38	0	0	4020	000	--	--	FCS	N	Y	mod turb; kph2pc 1 then 0
1097	4-May	vonKlein	--	--	SS	0.38	0	0	4020	000	--	--	FCS	N	Y	20K 250kt, mod turb; kph2pc 0 then 1
1112	5-May	vonKlein	--	--	CS	0.38	0	0	4020	000	10.07	--	FCS	N	N	

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers	Lat FCS	Long FCS	Task	Config Operator	DASE Motor on	Data saved	Notes	Config changes	
														Audie	Vidéo
1113	5-May	vonKlein	Jackson	--	CS	0.38	0	0	4020	000	10:13	--	FCS	N	N
1114	5-May	Jackson	vonKlein	--	SS	0.38	0	0	4020	000	10:18	--	FCS	N	N
1115	5-May	Jackson	vonKlein	--	SS	0.38	0	0	4020	000	10:19	--	FCS	N	N
1116	5-May	Jackson	vonKlein	--	CS	0.38	0	0	4020	000	10:20	--	FCS	N	Y
1117	5-May	vonKlein	Jackson	--	CS	0.38	0	0	4020	000	10:21	--	FCS	N	Y
1118	5-May	vonKlein	Jackson	--	CS	0.38	0	0	4020	000	10:22	--	FCS	N	Y
1119	5-May	vonKlein	Jackson	--	CS	0.38	0	0	4020	000	10:24	--	FCS	N	Y
1120	5-May	vonKlein	Jackson	--	CS	0.38	0	0	4020	000	10:25	--	FCS	N	Y
1121	5-May	Jackson	vonKlein	--	SS	0.38	0	0	4020	000	10:26	--	FCS	N	Y
1122	5-May	Jackson	vonKlein	--	SS	0.38	0	0	4020	000	10:27	--	FCS	N	Y
1123	5-May	vonKlein	Jackson	--	CS	0.38	0	0	4020	000	10:28	--	FCS	N	Y
1124	5-May	vonKlein	Jackson	--	CS	0.38	0	0	4020	000	10:30	--	FCS	N	Y
1125	5-May	Jackson	vonKlein	--	SS	0.38	0	0	4020	000	10:31	--	FCS	N	Y
1126	5-May	Jackson	vonKlein	--	SS	0.38	0	0	4050	000	10:35	--	FCS	N	Y
1127	5-May	Jackson	vonKlein	--	SS	0.38	0	0	4050	000	10:35	--	FCS	N	Y
1128	5-May	Jackson	vonKlein	--	SS	0.38	0	0	4050	000	10:36	--	FCS	N	Y
1129	5-May	Jackson	vonKlein	--	SS	0.38	0	0	4050	000	10:37	--	FCS	N	Y
1130	5-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	10:38	--	FCS	N	Y
1131	5-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	10:39	--	FCS	N	Y
1132	5-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	10:42	--	FCS	N	Y
1133	5-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	10:44	--	FCS	N	Y
1134	5-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	10:45	--	FCS	N	Y
1135	5-May	vonKlein	Jackson	--	CS	0.38	0	0	2010	000	10:53	--	FCS	N	Y
1136	5-May	vonKlein	Jackson	--	CS	0.38	0	0	2010	000	10:55	--	FCS	N	Y
1137	5-May	vonKlein	Jackson	--	CS	0.38	0	0	2010	000	10:57	--	FCS	N	Y
1140	6-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	--	--	FCS	N	Y
1141	6-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	--	--	FCS	N	Y
1142	6-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	--	--	FCS	N	Y
1143	6-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	--	--	FCS	N	Y
1144	6-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	--	--	FCS	N	Y
1145	6-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	--	--	FCS	N	Y
1146	6-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	--	--	FCS	N	Y
1148	6-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	9:21	--	FCS	N	N
1149	6-May	Jackson	vonKlein	--	SS	0.38	0	0	4050	000	9:28	--	FCS	N	N
1150	6-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	9:31	--	FCS	N	N
1151	6-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	9:34	--	FCS	N	N
1152	6-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	9:38	--	FCS	N	N
1153	6-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	9:42	--	FCS	N	N
1154	6-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	9:45	--	FCS	N	N
1155	6-May	vonKlein	Jackson	--	CS	0.38	0	0	4050	000	9:50	--	FCS	N	N

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers	Lat FCS	Long FCS	Task	Config Operator	DASE on	Motor on	Data saved	Notes	Config changes	
															Audited	Videotape
1188	7-May	vonKlein	--	--	CS	0.39	0	0	4050	000	9.48	--	FCS N	N	Y	Mexset 1 - linear roll shaping
1189	7-May	vonKlein	--	--	CS	0.39	0	0	4059	000	9.51	--	FCS N	N	Y	Mexset 1 - linear roll shaping
1190	7-May	vonKlein	--	--	CS	0.39	0	0	4069	000	9.55	--	FCS N	N	Y	Mexset 3 - increased nonlinear roll sensitivity
1171	7-May	vonKlein	--	--	CS	0.39	0	0	4069	000	10.03	--	FCS N	N	Y	Mexset 1 - linear roll shaping
1172	7-May	vonKlein	--	--	CS	0.39	0	0	3084	000	10.10	--	FCS N	N	Y	Mexset 1 - linear roll shaping
1173	7-May	vonKlein	--	--	CS	0.39	0	0	3084	000	10.15	--	FCS N	N	Y	Mexset 4 - nonlinear shape for supersonic cruise
1174	7-May	vonKlein	--	--	CS	0.39	0	0	3088	000	10.15	--	FCS N	N	Y	Mexset 4 - nonlinear shape for supersonic cruise
1175	7-May	vonKlein	--	--	CS	0.39	0	0	3086	000	10.18	--	FCS N	N	Y	250 kt 25000 ft; Mexset 1
1176	7-May	vonKlein	--	--	CS	0.39	0	0	3086	000	10.21	--	FCS N	N	Y	250 kt 25000 ft; Mexset 5
1177	7-May	vonKlein	--	--	CS	0.39	0	0	3086	000	10.26	--	FCS N	N	Y	250 kt 25000 ft; Mexset 1, turb 4.5 fps; kph2pc
1178	7-May	vonKlein	--	--	CS	0.39	0	0	3086	000	10.32	--	FCS N	N	Y	0 -> 1 during run
1179	7-May	vonKlein	--	--	CS	0.39	0	0	3086	000	10.32	--	FCS N	N	Y	250 kt 25000 ft; Mexset 1, turb 4.5 fps; downmax 0.1
1180	7-May	vonKlein	--	--	CS	0.39	0	0	3086	000	10.36	--	FCS N	N	Y	250 kt 25000 ft; Mexset 1, turb 4.5 fps;
1181	7-May	vonKlein	--	--	CS	0.39	0	0	3086	000	10.39	--	FCS N	N	Y	kph2phi=0.4; dcwmax 0.1
1182	7-May	vonKlein	--	--	CS	0.39	0	0	4050	000	10.45	--	FCS N	N	Y	250 kt 25000 ft; Mexset 1, turb 4.5 fps; kph2phi=0.6; dcwmax 0.1
1183	7-May	vonKlein	--	--	CS	0.39	0	0	4050	000	10.48	--	FCS N	N	Y	Mexset 1, turb 4.5 fps; kp2phi=0.4; dowmax 0.1
1184	7-May	vonKlein	--	--	CS	0.39	0	0	4050	000	10.51	--	FCS N	N	Y	Mexset 1, turb 4.5 fps; kp2phi=0.6; dowmax 0.1
1185	7-May	vonKlein	--	--	CS	0.39	0	0	4050	000	10.55	--	FCS N	N	Y	Mexset 1, turb 4.5 fps; kp2phi=0.2; dowmax 0.0
1186	7-May	vonKlein	--	--	CS	0.39	0	0	4050	000	10.58	--	FCS N	N	Y	kph2pc 0 ->1 during run
1195	8-May	Norman	vonKlein	--	CS	0.39	0	0	4050	000	8.49	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 1; open-loop flying
1196	8-May	Norman	vonKlein	--	CS	0.39	0	0	4050	000	8.56	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 1
1197	8-May	Norman	vonKlein	--	CS	0.39	0	0	4050	000	9.00	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 1; autoreard
1198	8-May	Norman	vonKlein	--	CS	0.39	0	0	4069	000	9.03	--	FCS N	Y	Y	and gamma breakout missing
1199	8-May	Norman	vonKlein	--	CS	0.39	0	0	4069	000	9.05	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 1
1200	8-May	Norman	vonKlein	--	CS	0.39	0	0	4069	000	9.08	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 1
1201	8-May	Norman	vonKlein	--	CS	0.39	0	0	4069	000	9.11	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 1; saw rudder saturation; near PIO
1202	8-May	Norman	vonKlein	--	CS	0.39	0	0	4069	000	9.15	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 1; softer inp no PIO
1203	8-May	Norman	vonKlein	--	CS	0.39	0	0	4069	000	9.18	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 6
1204	8-May	Norman	vonKlein	--	CS	0.39	0	0	4069	000	9.26	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 6
1205	8-May	Norman	vonKlein	--	CS	0.39	0	0	4069	000	9.29	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 6
1206	8-May	Norman	vonKlein	--	CS	0.39	0	0	4069	000	9.31	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 6
1207	8-May	Norman	vonKlein	--	CS	0.39	0	0	4069	000	9.39	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 3; open-loop flying
1208	8-May	Norman	vonKlein	--	CS	0.39	0	0	4069	000	9.46	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 3
1209	8-May	Norman	vonKlein	--	CS	0.39	0	0	4069	000	9.49	--	FCS N	Y	Y	heading error to reduce bank angle
1210	8-May	Norman	vonKlein	--	CS	0.39	0	0	4093	000	9.55	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 1
1211	8-May	Norman	vonKlein	--	CS	0.39	0	0	4093	000	9.59	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 6
1212	8-May	Norman	vonKlein	--	CS	0.39	0	0	4093	000	10.04	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 6
1213	8-May	Norman	vonKlein	--	CS	0.39	0	0	4093	000	10.10	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 1
1214	8-May	Norman	vonKlein	--	CS	0.39	0	0	4093	000	10.13	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 3; carried some
1215	8-May	Norman	vonKlein	--	CS	0.39	0	0	3385	000	10.20	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 1
1216	8-May	Norman	vonKlein	--	CS	0.39	0	0	3385	000	10.26	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.4; Mexset 6
1217	8-May	Norman	vonKlein	--	CS	0.39	0	0	3385	000	10.32	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.0; Mexset 1
1218	8-May	Norman	vonKlein	--	CS	0.39	0	0	3384	000	10.39	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.0; Mexset 1
1219	8-May	Norman	vonKlein	--	CS	0.39	0	0	3384	000	10.43	--	FCS N	Y	Y	dcwmax 0.07; kp2phi 0.0; Mexset 4
1267	14-May	Norman	vonKlein	--	CS	0.39	0	0	4050	000	14.45	--	FCS N	Y	Y	DCWMAX 0.05; kp2phi 0
1268	14-May	Norman	vonKlein	--	CS	0.39	0	0	4050	000	14.49	--	FCS N	Y	Y	Mexset 6; DCWMAX 0.05; kp2phi 0

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers	Lat FCS	Long FCS	FCS Task	Config Operator	DASE on	Motor on	Data saved	Config changes		
														Audie	Vidéo	
1289	14-May	Norman	--	--	CS	0.39	0	0	4069	000	14:55	--	--	FCS	N	Y
1270	14-May	Norman	--	--	CS	0.39	0	0	4069	000	15:00	--	--	FCS	N	Y
1271	14-May	Norman	--	--	CS	0.39	0	0	4069	000	15:02	--	--	FCS	N	Y
1272	14-May	Norman	--	--	CS	0.39	0	0	4069	000	15:04	--	--	FCS	N	Y
1273	14-May	Norman	--	--	CS	0.39	0	0	4069	000	15:09	--	--	FCS	N	Y
1274	14-May	Norman	--	--	CS	0.39	0	0	4093	000	15:14	--	--	FCS	N	Y
1275	14-May	Norman	--	--	CS	0.39	0	0	4093	000	15:18	--	--	FCS	N	Y
1293	18-May	Rossitto	Shweyk	Jackson	CS	0.40	0	0	2010	000	--	--	--	Roll	N	Y
1294	18-May	Rossitto	Shweyk	Jackson	CS	0.40	0	0	2010	000	--	--	--	Roll	N	Y
1295	18-May	Rossitto	Shweyk	Jackson	CS	0.40	0	0	2010	000	--	--	--	Roll	N	Y
1296	18-May	Shweyk	--	--	Turret	0.40	0	0	4129	101	15:35	--	--	Roll	N	Y
1297	18-May	Shweyk	--	--	Turret	0.40	0	0	4129	108	15:35	--	--	Roll	N	Y
1298	18-May	Shweyk	--	--	Turret	0.40	0	0	4129	115	15:37	--	--	Roll	N	Y
1299	18-May	Shweyk	--	--	Turret	0.40	0	0	4129	201	15:38	--	--	Roll	N	Y
1300	18-May	Shweyk	--	--	Turret	0.40	0	0	4129	208	15:39	--	--	Roll	N	Y
1301	18-May	Shweyk	--	--	Turret	0.40	0	0	3385	201	15:43	--	--	Roll	N	Y
1302	18-May	Shweyk	--	--	Turret	0.40	0	0	3385	201	15:44	--	--	Roll	N	Y
1303	18-May	Shweyk	--	--	Turret	0.40	0	0	3385	208	15:44	--	--	Roll	N	Y
1304	18-May	Shweyk	--	--	Turret	0.40	0	0	3385	215	15:45	--	--	Roll	N	Y
1305	18-May	Shweyk	--	--	Turret	0.40	0	0	3384	301	15:47	--	--	Roll	N	Y
1306	18-May	Shweyk	--	--	Turret	0.40	0	0	3384	308	15:47	--	--	Roll	N	Y
1307	18-May	Shweyk	--	--	Turret	0.40	0	0	3384	315	15:48	--	--	Roll	N	Y
1308	18-May	Shweyk	--	--	Turret	0.40	0	0	3384	315	15:50	--	--	Roll	N	Y
1309	18-May	Shweyk	--	--	Turret	0.40	0	0	3384	100	15:51	--	--	Roll	N	Y
1310	18-May	Shweyk	--	--	Turret	0.40	0	0	3385	201	15:54	--	--	Roll	N	Y
1311	18-May	Shweyk	--	--	Turret	0.40	0	0	3385	208	15:55	--	--	Roll	N	Y
1312	18-May	Shweyk	--	--	Turret	0.40	0	0	3385	215	15:56	--	--	Roll	N	Y
1313	18-May	Shweyk	--	--	Turret	0.40	0	0	3384	215	15:57	--	--	Roll	N	Y
1314	18-May	Shweyk	--	--	Turret	0.40	0	0	3384	301	15:58	--	--	Roll	N	Y
1315	18-May	Shweyk	--	--	Turret	0.40	0	0	3384	308	15:59	--	--	Roll	N	Y
1316	18-May	Shweyk	--	--	Turret	0.40	0	0	3384	315	16:00	--	--	Roll	N	Y
1317	18-May	Shweyk	--	--	Turret	0.40	0	0	3384	100	16:01	--	--	Roll	N	Y
1319	18-May	Shweyk	--	--	CS	0.40	0	0	4129	108	16:40	--	--	Roll	N	Y
1320	18-May	Shweyk	--	--	CS	0.40	0	0	4129	108	16:46	--	--	Roll	N	Y
1321	18-May	Shweyk	--	--	CS	0.40	0	0	4129	108	16:51	--	--	Roll	N	Y
1322	18-May	Shweyk	--	--	CS	0.40	0	0	4129	108	16:54	--	--	Roll	N	Y
1330	19-May	Rossitto	Shweyk	Shweyk	SS	0.40	0	0	4020	100	9:40	--	--	Roll	N	Y
1331	19-May	Rossitto	Shweyk	Shweyk	SS	0.40	0	0	4020	100	9:51	--	--	Roll	N	Y
1332	19-May	Rossitto	Shweyk	Shweyk	SS	0.40	0	0	4020	100	9:52	--	--	Roll	N	Y
1333	19-May	Rossitto	Shweyk	Shweyk	SS	0.40	0	0	4020	100	9:55	--	--	Roll	N	Y
1334	19-May	Rossitto	Shweyk	Shweyk	SS	0.40	0	0	4020	100	9:58	--	--	Roll	N	Y
1335	19-May	Rossitto	Shweyk	Shweyk	SS	0.40	0	0	4020	100	10:00	--	--	Roll	N	Y
1336	19-May	Rossitto	Shweyk	Shweyk	SS	0.40	0	0	4020	100	10:02	--	--	Roll	N	Y
1337	19-May	Rossitto	Shweyk	Shweyk	SS	0.40	0	0	4020	100	10:03	--	--	Roll	N	Y
1338	19-May	Rossitto	Shweyk	Shweyk	SS	0.40	0	0	3385	100	10:16	--	--	Roll	N	Y
1339	19-May	Rossitto	Shweyk	Shweyk	SS	0.40	0	0	3384	100	10:27	--	--	Roll	N	Y
1340	19-May	Rossitto	Shweyk	Shweyk	SS	0.40	0	0	3384	308	10:33	--	--	Roll	N	Y
1341	19-May	Rossitto	Shweyk	Shweyk	SS	0.40	0	0	3385	208	10:39	--	--	Roll	N	Y
1356	20-May	Shweyk	--	--	Turret	0.41	0	0	4020	101	9:28	--	--	Roll	N	Y
1357	20-May	Shweyk	--	--	Turret	0.41	0	0	4020	101	9:30	--	--	Roll	N	Y
1358	20-May	Shweyk	--	--	Turret	0.41	0	0	4020	108	9:31	--	--	Roll	N	Y
1359	20-May	Shweyk	--	--	Turret	0.41	0	0	4020	115	9:32	--	--	Roll	N	Y
1360	20-May	Shweyk	--	--	Turret	0.41	0	0	3385	201	9:33	--	--	Roll	N	Y
1361	20-May	Shweyk	--	--	Turret	0.41	0	0	3385	208	9:34	--	--	Roll	N	Y
1362	20-May	Shweyk	--	--	Turret	0.41	0	0	3385	215	9:35	--	--	Roll	N	Y
1363	20-May	Shweyk	--	--	Turret	0.41	0	0	3384	301	9:36	--	--	Roll	N	Y

Fixed bug in mixer when large left command

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Incep-tor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operat-	DASE on	Motor on	Notes saved	Config changes		
														Audi-	Vide-	Test
1364	20-May	Shweyk	--	--	Turret	0.41	0	0	3.384	308	9.37	--	Roll	N	Y	zero turb
1365	20-May	Shweyk	--	--	Turret	0.41	0	0	3.384	315	9.38	--	Roll	N	Y	zero turb
1366	20-May	Shweyk	--	--	Turret	0.41	0	0	4.020	100	9.39	--	Roll	N	Y	zero turb
1367	20-May	Shweyk	--	--	Turret	0.41	0	0	4.129	108	9.46	--	Roll	N	Y	zero turb; gust at x1200 happened at x1200
1368	20-May	Shweyk	--	--	Turret	0.41	0	0	4.129	108	9.46	--	Roll	N	Y	zero turb; gusts changed to ft/sec
1369	20-May	Shweyk	--	--	Turret	0.41	0	0	4.129	108	9.55	--	Roll	N	Y	zero turb
1370	20-May	Shweyk	--	--	Turret	0.41	0	0	4.129	108	10.12	--	Roll	N	Y	zero turb
1371	20-May	Norman	Shweyk	--	CS	0.41	0	0	4.020	100	10.19	--	Roll	Y	N	zero turb
1372	20-May	Norman	Shweyk	--	CS	0.41	0	0	4.020	100	10.24	--	Roll	N	Y	zero turb
1373	20-May	Norman	Shweyk	--	CS	0.41	0	0	4.020	100	10.30	--	Roll	N	Y	zero turb
1374	20-May	Norman	Shweyk	--	CS	0.41	0	0	4.020	100	10.36	--	Roll	N	Y	first piloted qust run
1375	20-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	100	10.44	--	Roll	N	Y	Y
1376	20-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	100	10.47	--	Roll	N	Y	Y
1377	20-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	108	10.50	--	Roll	N	Y	wrong config
1378	20-May	Norman	Shweyk	--	CS	0.41	0	0	3.384	108	10.56	--	Roll	N	Y	lost Cfg
1379	20-May	Norman	Shweyk	--	Turret	0.41	0	0	3.384	308	11.00	--	Roll	N	Y	Y
1385	20-May	Rositto	--	--	Turret	0.41	0	0	4.020	100	14.50	--	Roll	N	Y	zero turb
1386	20-May	Rositto	--	--	Turret	0.41	0	0	4.020	100	14.55	--	Roll	N	Y	zero turb
1387	20-May	Shweyk	--	--	Turret	0.41	0	0	3.384	308	15.04	--	Roll	N	Y	light turb
1388	20-May	Rositto	--	--	Turret	0.41	0	0	3.384	308	15.11	--	Roll	N	Y	light turb
1389	20-May	Rositto	--	Jackson	Turret	0.41	0	0	3.385	208	15.15	--	Roll	N	Y	light turb
1402	21-May	Rositto	--	Shweyk	SS	0.41	0	0	3.384	100	10.46	--	Roll	N	Y	test of turn criteria
1403	21-May	Rositto	--	Shweyk	SS	0.41	0	0	3.385	100	10.49	--	Roll	N	Y	test of turn criteria
1404	21-May	Shweyk	--	Rositto	CS	0.41	0	0	2.010	100	10.55	--	Roll	N	Y	long. stick sweep
1405	21-May	Shweyk	--	Rositto	CS	0.41	0	0	2.010	100	10.56	--	Roll	N	Y	long. stick sweep
1408	21-May	Shweyk	--	Shweyk	Turret	0.41	0	0	3.385	208	14.42	--	Roll	N	N	hqd change critera check
1409	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	103	15.20	61	Roll	N	Y	gust A; warmup for Mike
1410	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	101	15.23	61	Roll	N	Y	gust A; more sluggish
1411	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	101	15.26	61	Roll	N	Y	gust A
1412	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	101	15.29	61	Roll	N	Y	gust A
1413	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	101	15.37	61	Roll	N	Y	gust A; even less responsive in roll
1414	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	101	15.39	61	Roll	N	Y	gust A; now have control debug print option; more responsive
1415	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	102	15.46	61	Roll	N	Y	gust A; now have control debug print option; more responsive
1416	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	102	15.48	61	Roll	N	Y	gust A
1417	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	102	15.51	61	Roll	N	Y	gust A
1418	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	103	15.58	61	Roll	N	Y	gust A; approaching fighter-type sensitivity
1419	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	103	16.01	61	Roll	N	Y	gust A; level 3 in landing due to PLO
1420	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	103	16.05	61	Roll	N	Y	gust A; rate limiting in aileron
1421	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	104	16.11	61	Roll	N	Y	gust A; into bang-bang control
1422	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	104	16.13	61	Roll	N	Y	gust A; more sluggish than baseline; seems like a delay
1423	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	104	16.16	61	Roll	N	Y	gust A
1424	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	105	16.21	61	Roll	N	Y	gust A
1425	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	105	16.24	61	Roll	N	Y	gust A; no turb (R-L-R)
1426	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	105	16.26	61	Roll	N	Y	gust A; no turb
1427	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	108	16.33	61	Roll	N	Y	gust A; warmup
1428	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	106	16.36	61	Roll	N	Y	gust A; more sluggish than baseline; seems like a delay
1429	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	106	16.39	61	Roll	N	Y	gust A
1430	21-May	Norman	Shweyk	--	CS	0.41	0	0	4.129	106	16.43	61	Roll	N	Y	gust A
1431	21-May	Jackson	--	--	Turret	0.41	0	0	4.129	106	16.51	61	Roll	N	Y	gust A; no turb
1432	21-May	Jackson	--	--	Turret	0.41	0	0	4.129	102	16.52	61	Roll	N	Y	gust A; no turb
1433	21-May	Jackson	--	--	Turret	0.41	0	0	4.129	100	16.54	61	Roll	N	Y	gust A; no turb
1434	21-May	Jackson	--	--	Turret	0.41	0	0	4.129	100	16.55	61	Roll	N	Y	gust C; turb
1435	21-May	Jackson	--	--	Turret	0.41	0	0	4.129	100	16.56	61	Roll	N	Y	gust C; no turb (L-R-L)
1436	21-May	Jackson	--	--	Turret	0.41	0	0	4.129	100	16.58	61	Roll	N	Y	gust B; no turb (R-L-L)

Note: "local" Langley task numbers:

4129, gust A = 100

4129, gust B = 101

4129, gust C = 102

3385 = 200

3384 = 300

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer Ver	Inceptor	FCS Vers.	Lat	Task	Config Operate	DASE Motion	Data saved	Notes	Config changes		
													Opn \ Pd	Test \ \Delta	Opn \ Pd	Test \ \Delta
1439	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	108	Y	quest A; warmup			
1440	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	106	Y	quest B; warmup			
1441	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	107	Y	quest C; more responsive than 106, not too bad			
1442	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	107	Y	quest A			
1443	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	107	Y	quest B			
1444	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	108	Y	quest C; across the ideal threshold but closer to ideal than 107			
1445	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	108	Y	quest A			
1446	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	108	Y	quest B; bad, but not as bad as 105 with 0.4 tail			
1447	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	109	Y	quest C			
1448	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	109	Y	quest A			
1449	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	109	Y	quest B			
1450	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	110	Y	quest C			
1451	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	110	Y	quest A			
1452	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	110	Y	quest B; bad, but not as bad as 105 with 0.4 tail			
1453	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	113	Y	quest C; warmup			
1454	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	111	Y	quest A			
1455	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	111	Y	quest B			
1456	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	111	Y	quest C			
1457	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	112	Y	quest A			
1458	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	112	Y	quest B			
1459	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	112	Y	quest C			
1460	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	113	Y	quest A; not too bad, probably as good as you'll do with this roll mode time constant			
1461	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	113	Y	quest B			
1462	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	113	Y	quest C			
1463	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	114	Y	quest A; have crossed the threshold of ideality if stick; biodynamic coupling through stick; Rudder on rate limit throughout.			
1464	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	114	Y	quest B			
1465	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	114	Y	quest C			
1466	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	115	Y	quest A			
1467	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	115	Y	quest B			
1468	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	115	Y	quest C			
1469	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	113	Y	quest A			
1470	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	103	Y	quest B			
1471	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	103	Y	quest C			
1472	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	103	Y	quest A			
1473	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	103	Y	quest B			
1474	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	103	Y	quest C			
1475	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	108	Y	quest A			
1476	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	115	Y	quest B			
1477	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	115	Y	quest C			
1478	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	113	Y	quest A			
1479	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	113	Y	quest B			
1480	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	113	Y	quest C			
1481	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	113	Y	quest A			
1482	22-May	Norman	Shweyk	--	CS	0.41	0	0	4129	113	Y	quest B			
1483	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	303	Y	quest A			
1484	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	301	Y	quest B			
1485	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	302	Y	quest C			
1486	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	302	Y	quest A			
1487	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	302	Y	quest B			
1488	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	303	Y	quest C			
1489	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	303	Y	quest A			
1490	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	304	Y	quest B			
1491	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	304	Y	quest C			
1492	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	305	Y	quest A			
1493	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	305	Y	quest B			
1494	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	306	Y	quest C			
1495	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	306	Y	pitch/roll harmony inappropriately fighter-like			
1496	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	308	Y	pitch/roll harmony inappropriately fighter-like			
1497	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	310	Y	pitch/roll harmony inappropriately fighter-like			
1498	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	310	Y	pitch/roll harmony inappropriately fighter-like			
1499	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	310	Y	pitch/roll harmony inappropriately fighter-like			

Config changes												
Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operator	Data saved	Notes
1500	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	313	16.25	63
1501	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	313	16.28	63
1502	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	311	16.33	63
1503	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	311	16.36	63
1504	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	315	16.41	63
1505	22-May	Norman	Shweyk	--	CS	0.41	0	0	3384	315	16.45	63
1512	26-May	Rivers	Shweyk	--	CS	0.41	0	0	4129	103	10.22	64
1513	26-May	Rivers	Shweyk	--	CS	0.41	0	0	4129	101	10.27	64
1514	26-May	Rivers	Shweyk	--	CS	0.41	0	0	4129	101	10.30	64
1515	26-May	Rivers	Shweyk	--	CS	0.41	0	0	4129	101	10.33	64
1516	26-May	Rivers	Shweyk	--	CS	0.41	0	0	4129	102	10.43	64
1517	26-May	Rivers	Shweyk	--	CS	0.41	0	0	4129	102	10.46	64
1518	26-May	Rivers	Shweyk	--	CS	0.41	0	0	4129	102	10.51	64
1522	26-May	Rivers	Rositto	--	CS	0.41	0	0	4129	102	15.19	64
1523	26-May	Rivers	Rositto	--	CS	0.41	0	0	4129	103	15.24	64
1524	26-May	Rivers	Rositto	--	CS	0.41	0	0	4129	103	15.29	64
1525	26-May	Rivers	Rositto	--	CS	0.41	0	0	4129	104	15.39	64
1526	26-May	Rivers	Rositto	--	CS	0.41	0	0	4129	104	15.44	64
1527	26-May	Rivers	Rositto	--	CS	0.41	0	0	4129	105	15.50	64
1528	26-May	Rivers	Rositto	--	CS	0.41	0	0	4129	105	15.55	64
1529	26-May	Rositto	--	--	SS	0.41	0	0	4129	105	16.17	65
1530	26-May	Rositto	--	--	SS	0.41	0	0	4129	105	16.18	65
1531	26-May	Rivers	Rositto	--	CS	0.41	0	0	4129	103	16.22	65
1532	26-May	Rivers	Rositto	--	CS	0.41	0	0	4129	103	16.23	65
1533	26-May	Rivers	Rositto	--	CS	0.41	0	0	4129	104	16.29	65
1534	26-May	Rivers	Rositto	--	CS	0.41	0	0	4129	104	16.36	65
1535	26-May	Rivers	Rositto	--	CS	0.41	0	0	4129	103	16.39	65
1536	26-May	Rivers	Rositto	--	CS	0.41	0	0	4129	104	16.42	65
1537	26-May	Rivers	Rositto	--	CS	0.41	0	0	4129	105	16.50	65
1538	26-May	Rivers	Rositto	--	CS	0.41	0	0	4129	105	16.54	65
1541	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	203	9.19	65
1542	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	203	9.24	65
1543	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	201	9.29	65
1544	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	201	9.33	65
1545	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	201	9.36	65
1546	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	203	9.46	65
1547	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	203	9.53	65
1548	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	205	9.59	65
1549	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	205	10.02	65
1550	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	208	10.18	65
1551	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	208	10.15	65
1552	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	206	10.23	65
1553	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	206	10.26	65
1554	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	210	10.35	65
1555	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	210	10.38	65
1556	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	213	10.46	65
1557	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	211	10.49	65
1558	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	211	10.52	65
1559	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	213	10.56	65
1560	27-May	Verstynen	Shweyk	--	CS	0.41	0	0	3385	213	10.59	66
1564	27-May	Rivers	Rositto	--	CS	0.41	0	0	4129	108	15.20	66
1565	27-May	Rivers	Rositto	--	CS	0.41	0	0	4129	106	15.24	66
1566	27-May	Rivers	Rositto	--	CS	0.41	0	0	4129	106	15.27	66
1567	27-May	Rivers	Rositto	--	CS	0.41	0	0	4129	106	15.31	66
1568	27-May	Rivers	Rositto	--	CS	0.41	0	0	4129	107	15.38	66

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Incep-tor	FCS Vers.	Lat FCS	Long FCS	Task	Config Operate	DASE on	Motor on	Data saved	Config changes		
														Audi	Vide	
1569	27-May	Rivers	Rositto	---	CS	0.41	0	0	4129	107	15.41	66	--	Roll	N	Y
1570	27-May	Rivers	Rositto	---	CS	0.41	0	0	4129	108	15.49	66	--	Roll	N	Y
1571	27-May	Rivers	Rositto	---	CS	0.41	0	0	4129	108	15.52	66	--	Roll	N	Y
1572	27-May	Rivers	Rositto	---	CS	0.41	0	0	4129	109	15.59	66	--	Roll	N	Y
1573	27-May	Rivers	Rositto	---	CS	0.41	0	0	4129	109	16.02	66	--	Roll	N	Y
1574	27-May	Rivers	Rositto	---	CS	0.41	0	0	4129	110	16.09	66	--	Roll	N	Y
1575	27-May	Rivers	Rositto	---	CS	0.41	0	0	4129	110	16.14	66	--	Roll	N	Y
1576	27-May	Rivers	Rositto	---	CS	0.41	0	0	4129	111	16.25	66	--	Roll	N	Y
1577	27-May	Rivers	Rositto	---	CS	0.41	0	0	4129	111	16.29	66	--	Roll	N	Y
1578	27-May	Rivers	Rositto	---	CS	0.41	0	0	4129	112	16.37	66	--	Roll	N	Y
1579	27-May	Rivers	Rositto	---	CS	0.41	0	0	4129	112	16.40	66	--	Roll	N	Y
1580	27-May	Rivers	Rositto	---	CS	0.41	0	0	4129	113	16.48	66	--	Roll	N	Y
1581	27-May	Rivers	Rositto	---	CS	0.41	0	0	4129	113	16.51	66	--	Roll	N	Y
1582	27-May	Rivers	Rositto	---	CS	0.41	0	0	4129	114	17.01	66	--	Roll	N	Y
1583	27-May	Rivers	Rositto	---	CS	0.41	0	0	4129	115	17.09	66	--	Roll	N	Y
1587	28-May	Rivers	Rositto	---	CS	0.41	0	0	3384	303	8.55	--	--	Roll	N	Y
1588	28-May	Rivers	Rositto	---	CS	0.41	0	0	3384	301	9.02	--	--	Roll	N	Y
1589	28-May	Rivers	Rositto	---	CS	0.41	0	0	3384	302	9.14	67	--	Roll	N	Y
1590	28-May	Rivers	Rositto	---	CS	0.41	0	0	3384	303	9.21	67	--	Roll	N	Y
1591	28-May	Rivers	Rositto	---	CS	0.41	0	0	3384	304	9.32	67	--	Roll	N	Y
1592	28-May	Rivers	Rositto	---	CS	0.41	0	0	3384	305	9.39	67	--	Roll	N	Y
1593	28-May	Rivers	Rositto	---	CS	0.41	0	0	3384	306	9.48	67	--	Roll	N	Y
1594	28-May	Rivers	Rositto	---	CS	0.41	0	0	3384	307	9.56	67	--	Roll	N	Y
1595	28-May	Rivers	Rositto	---	CS	0.41	0	0	3384	308	10.10	67	--	Roll	N	Y
1596	28-May	Rivers	Rositto	---	CS	0.41	0	0	3384	308	10.11	67	--	Roll	N	Y
1597	28-May	Rivers	Rositto	---	CS	0.41	0	0	3384	309	10.18	67	--	Roll	N	Y
1598	28-May	Rivers	Rositto	---	CS	0.41	0	0	3384	310	10.28	67	--	Roll	N	Y
1599	28-May	Rivers	Rositto	---	CS	0.41	0	0	3384	311	10.51	67	--	Roll	N	Y
1600	28-May	Rivers	Rositto	---	CS	0.41	0	0	3384	312	10.59	67	--	Roll	N	Y
1603	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	3384	300	15.00	68	--	Roll	N	Y
1604	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	3385	215	15.03	68	--	Roll	N	Y
1605	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	3384	308	15.14	68	--	Roll	N	Y
1606	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	3384	303	15.20	68	--	Roll	N	Y
1607	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	3384	308	15.27	68	--	Roll	N	Y
1608	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	3384	313	15.33	68	--	Roll	N	Y
1609	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	4129	108	15.41	68	--	Roll	N	Y
1610	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	4129	108	15.42	68	--	Roll	N	Y
1611	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	4129	108	15.46	68	--	Roll	N	Y
1612	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	4129	103	15.50	68	--	Roll	N	Y
1613	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	4129	103	15.53	68	--	Roll	N	Y
1614	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	4129	108	16.02	68	--	Roll	N	Y
1615	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	4129	108	16.05	68	--	Roll	N	Y
1616	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	4129	113	16.14	68	--	Roll	N	Y
1617	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	4129	113	16.16	68	--	Roll	N	Y
1618	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	3384	313	16.29	68	--	Roll	N	Y
1619	28-May	Verstynen	Shewyk	---	CS	0.41	0	0	3384	313	16.31	68	--	Roll	N	Y
1620	28-May	Rivers	Shewyk	---	CS	0.41	0	0	3384	314	16.39	68	--	Roll	N	Y
1621	28-May	Rivers	Shewyk	---	CS	0.41	0	0	3384	315	16.46	68	--	Roll	N	Y
1622	28-May	Rivers	Shewyk	---	CS	0.41	0	0	3385	201	16.54	68	--	Roll	N	Y
1623	28-May	Rivers	Shewyk	---	CS	0.41	0	0	3385	203	16.57	68	--	Roll	N	Y
1624	28-May	Rivers	Shewyk	---	DYNCK	0.41	0	0	3385	205	17.00	68	--	Roll	N	Y
1625	29-May	Otto	Shewyk	---	DYNCK	0.41	0	0	4129	101	8.47	--	--	Roll	N	Y
1629	29-May	Otto	Shewyk	---	DYNCK	0.41	0	0	4129	108	8.48	--	--	Roll	N	Y
1630	29-May	Otto	Shewyk	---	DYNCK	0.41	0	0	4129	115	8.49	--	--	Roll	N	Y
1631	29-May	Otto	Shewyk	---	DYNCK	0.41	0	0	4129	201	8.50	--	--	Roll	N	Y

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operator	DASE on	Motor on	Data saved	Notes	Config changes		
															Audi	Vide	
1632	29-May	Otto	--	--	--	DYNCK 0.41	0	0	4129	208	8.51	--	Roll	N	Y	check case - 0.2 lat pulse, zero turb & gust	
1633	29-May	Otto	--	--	--	DYNCK 0.41	0	0	4129	215	8.52	--	Roll	N	Y	check case - 0.2 lat pulse, zero turb & gust	
1634	29-May	Otto	--	--	--	DYNCK 0.41	0	0	4129	301	8.53	--	Roll	N	Y	check case - 0.2 lat pulse, zero turb & gust	
1635	29-May	Otto	--	--	--	DYNCK 0.41	0	0	4129	308	8.53	--	Roll	N	Y	check case - 0.2 lat pulse, zero turb & gust	
1636	29-May	Otto	--	--	--	DYNCK 0.41	0	0	4129	315	8.54	--	Roll	N	Y	check case - 0.2 lat pulse, zero turb & gust	
1650	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	9.03	--	SMC	Y	N	mexset 103; rudder pulse; chin fin hardover	
1651	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	9.05	--	SMC	Y	N	mexset 103; rudder pulse; chin fin hardover	
1652	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	9.07	--	SMC	Y	N	mexset 103; rudder pulse; chin fin hardover	
1653	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	9.08	--	SMC	Y	N	mexset 1; stable	
1654	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	9.11	--	SMC	Y	N	mexset 103; reduced gain kry 3200; stable	
1655	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	9.13	--	SMC	Y	N	mexset 103; original gain kry 30600; hardover	
1656	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	9.13	--	SMC	Y	N	mexset 103; reduced gain kry 6400; stable	
1657	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	9.16	--	SMC	Y	N	mexset 103; reduced gain kry 5000; no discernable chin fin motion	
1658	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	9.17	--	SMC	Y	N	mexset 104; kry 5000; hardover; host crashed	
1659	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	9.42	--	SMC	Y	N	mexset 1; rudder pulse; stable	
1660	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.12	--	SMC	Y	N	mexset 103; kry 6000; stable	
1661	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.13	--	SMC	Y	N	mexset 103; kry 12000; stable	
1662	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.14	--	SMC	Y	N	mexset 103; kry 24000; hardover	
1663	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.14	--	SMC	Y	N	mexset 1 to clean integrators	
1664	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.15	--	SMC	Y	N	mexset 103; kry 18000; hardover	
1665	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.16	--	SMC	Y	N	mexset 1 to clean integrators	
1666	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.17	--	SMC	Y	N	mexset 103; kry 15000; low freq hardover	
1667	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.18	--	SMC	Y	N	mexset 1 to clean integrators	
1668	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.18	--	SMC	Y	N	mexset 103; kry 12000; stable	
1669	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.19	--	SMC	Y	N	mexset 104; kry 12000; stable	
1670	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.23	--	SMC	Y	N	mexset 103; kry 12000; stable; rudder pulse	1.8;
1671	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.27	--	SMC	Y	N	autothrottle on	
1672	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.32	--	SMC	Y	N	mexset 103; kry 12000; stable; rudder pulse	1.8;
1673	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.32	--	SMC	Y	N	mexset 103; kry 12000; stable; rudder pulse	0.3
1674	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.33	--	SMC	Y	N	mexset 103; kry 12000; stable; rudder pulse	0.5
1675	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.34	--	SMC	Y	N	mexset 103; kry 12000; stable; rudder pulse	1.0
1676	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.37	--	SMC	Y	N	mexset 103; kry 12000; stable; rudder pulse	0
1677	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.40	--	SMC	Y	N	mexset 103; kry 6000; stable; rudder pulse	1.0
1678	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.42	--	SMC	Y	N	by 0.8 sec	
1679	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.43	--	SMC	Y	N	Y	mexset 103; kry 6000; stable; orig. rudder pulse (repeat of 1660)
1680	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.46	--	SMC	Y	N	Y	mexset 103; kry 12000; stable; orig. rudder p (repeat of 1668)
1681	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.47	--	SMC	Y	N	Y	mexset 103; kry 12000; stable; gust 4.5
1682	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	10.48	--	SMC	Y	N	Y	mexset 103; kry 12000; stable; gust 6.0
1683	1-Jun	Lewis	--	--	--	Turret	0.41	A1	9020	000	10.49	--	SMC	Y	N	Y	mexset 103; kry 12000; stable; gust 7.5
1684	1-Jun	Lewis	--	--	--	Turret	0.41	A1	9020	000	10.50	--	SMC	Y	N	Y	mexset 103; kry 12000; stable; gust 3.0
1685	1-Jun	Jackson	--	--	--	Turret	0.41	A1	9020	000	10.51	--	SMC	Y	N	Y	mexset 103; kry 6000; rudder pulse, crossfeed
1686	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	11.01	--	SMC	Y	N	Y	gains 1; unclean
1687	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	11.02	--	SMC	Y	N	Y	mexset 103; kry 6000; rudder pulse missing,
1688	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	11.04	--	SMC	Y	N	Y	mexset 103; kry 6000; rudder pulse, crossfeed
1689	1-Jun	Otto	--	--	--	DYNCK 0.41	0	A1	9020	000	11.07	--	SMC	Y	N	Y	gains 1

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Incep-tor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operate	Audie	Video	DASE on	Motor on	Data saved	Config changes		
1690	1-Jun	Otto	--	--	DYNCK	0.41	0	A1	9020	000	11:09	--	SMC	Y	N	Y	Y	Y
1691	1-Jun	Otto	--	--	DYNCK	0.41	0	A1	9020	000	11:10	--	SMC	Y	N	Y	Y	Y
1692	1-Jun	Otto	--	--	DYNCK	0.41	0	A1	9020	000	11:17	--	SMC	Y	N	Y	Y	Y
1693	1-Jun	Otto	--	--	DYNCK	0.41	0	A1	9020	000	11:18	--	SMC	Y	N	N	N	N
1694	1-Jun	Otto	--	--	DYNCK	0.41	0	A1	9020	000	11:24	--	SMC	Y	N	N	N	N
1695	1-Jun	Otto	--	--	DYNCK	0.41	0	A1	9020	000	11:27	--	SMC	Y	N	N	N	N
1700	1-Jun	Otto	--	--	DYNCK	0.41	0	A1	Custom	000	12:52	--	SMC	Y	N	Y	Y	Y
1701	1-Jun	Otto	--	--	DYNCK	0.41	0	0	Custom	000	12:53	--	SMC	Y	N	Y	Y	Y
1702	1-Jun	Otto	--	--	DYNCK	0.41	0	0	3384	000	12:56	--	SMC	N	N	Y	Y	Y
1703	1-Jun	Otto	--	--	DYNCK	0.41	0	A1	3384	000	12:56	--	SMC	N	N	Y	Y	Y
1704	1-Jun	Otto	--	--	DYNCK	0.41	0	A1	3384	000	12:58	--	SMC	N	N	Y	Y	Y
1705	1-Jun	Otto	--	--	DYNCK	0.41	0	A1	3384	000	12:58	--	SMC	Y	N	Y	Y	Y
1706	1-Jun	Otto	--	--	DYNCK	0.41	0	A1	3384	000	12:59	--	SMC	Y	N	Y	Y	Y
1707	1-Jun	Otto	--	--	DYNCK	0.41	0	A1	3384	000	13:03	--	SMC	Y	N	Y	Y	Y
1708	1-Jun	Otto	--	--	DYNCK	0.41	0	A1	3384	000	13:09	--	SMC	Y	N	Y	Y	Y
1709	1-Jun	Jackson	--	--	Turret	0.41	0	A1	3384	000	13:13	--	SMC	Y	N	N	N	N
1710	1-Jun	Jackson	--	--	Turret	0.41	0	A1	9020	000	13:52	--	SMC	Y	N	N	N	N
1711	1-Jun	Goldthorp	Jackson	--	CS	0.41	0	A1	9020	000	14:18	--	SMC	Y	Y	N	N	N
1712	1-Jun	Jackson	Goldthorp	--	SS	0.41	0	A1	9020	000	14:25	--	SMC	Y	Y	N	N	N
1713	1-Jun	Jackson	Goldthorp	--	SS	0.41	0	A1	9020	000	14:33	--	SMC	Y	Y	N	N	N
1714	1-Jun	Goldthorp	Jackson	--	SS	0.41	0	A1	9020	000	14:43	--	SMC	Y	Y	N	N	N
1715	1-Jun	Goldthorp	Jackson	--	SS	0.41	0	A1	9030	000	14:54	--	SMC	Y	Y	N	N	N
1716	1-Jun	Goldthorp	Jackson	--	SS	0.41	0	A1	9030	000	14:58	--	SMC	Y	Y	N	N	N
1717	1-Jun	Goldthorp	Jackson	--	SS	0.41	0	A1	9040	000	15:02	--	SMC	Y	Y	N	N	N
1718	1-Jun	Goldthorp	Jackson	--	SS	0.41	0	A1	9040	000	15:04	--	SMC	Y	Y	N	N	N
1719	1-Jun	Jackson	Goldthorp	--	CS	0.42	0	A1	9020	000	15:27	--	SMC	Y	Y	N	N	N
1720	1-Jun	Goldthorp	Jackson	--	SS	0.42	0	A1	9020	000	15:29	--	SMC	Y	Y	N	N	N
1721	1-Jun	Goldthorp	Jackson	--	SS	0.42	0	A1	9020	000	15:32	--	SMC	Y	Y	N	N	N
1722	1-Jun	Goldthorp	Jackson	--	SS	0.42	0	A1	9020	000	15:32	--	SMC	Y	Y	N	N	N
1723	1-Jun	Turret	--	--	SS	0.42	0	A1	9020	000	15:42	--	SMC	Y	Y	N	N	N
1724	1-Jun	Turret	--	--	SS	0.42	0	A1	9020	000	15:46	--	SMC	Y	Y	N	N	N
1725	1-Jun	Turret	--	--	SS	0.42	0	A1	9020	000	15:47	--	SMC	Y	Y	N	N	N
1726	1-Jun	Turret	--	--	SS	0.41	0	A1	9020	000	15:52	--	SMC	Y	Y	N	N	N
1727	1-Jun	Turret	--	--	SS	0.41	0	A1	9020	000	15:55	--	SMC	Y	Y	N	N	N
1728	1-Jun	Turret	--	--	SS	0.41	0	A1	9020	000	16:14	--	SMC	Y	Y	N	N	N
1729	1-Jun	Turret	--	--	SS	0.41	0	A1	9020	000	16:15	--	SMC	Y	Y	N	N	N
1730	1-Jun	Turret	--	--	SS	0.41	0	A1	9020	000	16:15	--	SMC	Y	Y	N	N	N
1731	2-Jun	Otto	--	--	DYNCK	0.42	0	A1	9020	000	8:40	--	SMC	Y	Y	Y	Y	Y
1732	2-Jun	Otto	--	--	DYNCK	0.42	0	A1	9020	000	8:42	--	SMC	Y	N	Y	Y	Y
1733	2-Jun	Otto	--	--	DYNCK	0.42	0	A1	9020	000	8:47	--	SMC	Y	N	Y	Y	Y

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers.	Long FCS	FCS	Lat FCS	Task	Config Operator	DASE on	Motor on	Data saved	Notes	Config changes
1734	2-Jun	Otto	...	...	--	DYNCK	0.42	0	A1	9020	000	8.48	--	SMC	Y	Y
1735	2-Jun	Jackson	...	...	--	Turret	0.42	0	A1	9020	000	8.51	--	SMC	Y	N
1736	2-Jun	Otto	...	...	--	DYNCK	0.42	0	A1	9030	000	9.02	--	SMC	Y	Y
1737	2-Jun	Otto	...	...	--	DYNCK	0.42	0	A1	9030	000	9.04	--	SMC	Y	N
1738	2-Jun	Otto	...	...	--	DYNCK	0.42	0	A1	9040	000	9.05	--	SMC	Y	Y
1739	2-Jun	Otto	...	...	--	DYNCK	0.42	0	A1	9040	000	9.06	--	SMC	Y	N
1740	2-Jun	Otto	...	...	--	DYNCK	0.42	0	A1	9040	000	9.07	--	SMC	Y	Y
1741	2-Jun	Otto	...	...	--	DYNCK	0.42	0	A1	9040	000	9.08	--	SMC	Y	N
1742	2-Jun	Otto	...	...	--	DYNCK	0.42	0	A1	9030	000	9.09	--	SMC	Y	Y
1743	2-Jun	Otto	...	...	--	DYNCK	0.42	0	A1	9030	000	9.09	--	SMC	Y	N
1744	2-Jun	Goldthorp	...	...	--	Turret	0.42	0	A1	9020	000	9.11	--	SMC	Y	Y
1745	2-Jun	Goldthorp	...	...	--	Turret	0.42	0	A1	9020	000	9.15	--	SMC	Y	N
1746	2-Jun	Goldthorp	...	...	--	Turret	0.42	0	A1	9020	000	9.15	--	SMC	Y	Y
1747	2-Jun	Derry	...	...	--	Turret	0.42	0	A1	9020	000	9.22	--	SMC	Y	Y
1748	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	9.44	--	SMC	Y	Y
1751	2-Jun	Goldthorp	...	...	--	Turret	0.42	0	0	9020	000	9.46	--	SMC	Y	N
1752	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	9.50	--	SMC	Y	N
1753	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	9.51	--	SMC	Y	N
1754	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	9.52	--	SMC	Y	N
1755	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	9.56	--	SMC	Y	N
1756	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	9.56	--	SMC	Y	N
1757	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	9.56	--	SMC	Y	Y
1758	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	10.05	--	SMC	Y	N
1759	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	10.05	--	SMC	Y	N
1761	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	10.08	--	SMC	Y	N
1762	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	10.10	--	SMC	Y	N
1763	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	10.10	--	SMC	Y	N
1764	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	10.12	--	SMC	Y	N
1765	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	10.14	--	SMC	Y	N
1766	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	10.15	--	SMC	Y	N
1767	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	10.16	--	SMC	Y	N
1768	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9020	000	10.17	--	SMC	Y	N
1769	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9030	000	10.21	--	SMC	Y	N
1770	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9030	000	10.23	--	SMC	Y	N
1771	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9030	000	10.24	--	SMC	Y	N
1772	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9030	000	10.24	--	SMC	Y	N
1773	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9030	000	10.24	--	SMC	Y	N
1774	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9030	000	10.25	--	SMC	Y	N
1775	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9030	000	10.25	--	SMC	Y	N
1776	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9030	000	10.27	--	SMC	Y	N
1777	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9030	000	10.28	--	SMC	Y	N
1778	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9040	000	10.31	--	SMC	Y	N
1779	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9040	000	10.33	--	SMC	Y	N
1780	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9040	000	10.33	--	SMC	Y	N
1781	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9040	000	10.34	--	SMC	Y	N
1782	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9040	000	10.34	--	SMC	Y	N
1783	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9040	000	10.37	--	SMC	Y	N
1784	2-Jun	Borland	...	...	--	Turret	0.42	0	0	9040	000	10.37	--	SMC	Y	N
1785	2-Jun	Borland	...	...	--	SS	0.42	0	0	9020	000	11.06	--	SMC	Y	N
1786	2-Jun	Checkout	...	...	--	SS	0.42	0	0	9020	000	11.06	--	SMC	Y	N
1787	2-Jun	Checkout	...	...	--	Norman	0.42	0	A1	9021	000	11.15	0	SMC	Y	Y
1788	2-Jun	Goldthorp	...	...	--	Goldthorp	0.42	0	0	9021	000	11.23	0	SMC	Y	Y
1789	2-Jun	Norman	...	...	--	Goldthorp	0.42	0	A1	9021	000	11.28	0	SMC	Y	Y
1790	2-Jun	Norman	...	...	--	Goldthorp	0.42	0	0	4069	000	11.37	0	SMC	Y	Y
1791	2-Jun	Norman	...	...	--	Goldthorp	0.42	0	0	4069	000	11.41	0	SMC	Y	Y
1792	2-Jun	Norman	...	...	--	Goldthorp	0.42	0	0	4069	000	11.41	0	SMC	Y	Y

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operator	DASE on	Motor on	Data saved	Config changes		
														Videocam	Audiotape	
1793	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	4069	000	11:45	0	--	SMC	Y	Y
1794	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	4069	000	11:48	0	--	SMC	Y	Y
1795	2-Jun	Norman	Goldthorpe	--	SS	0.42	0	O	4069	000	11:59	0	--	SMC	Y	Y
1796	2-Jun	Norman	Goldthorpe	--	SS	0.42	0	O	4069	000	12:03	0	--	SMC	Y	Y
1797	2-Jun	Norman	Goldthorpe	--	SS	0.42	0	A1	4069	000	12:08	0	--	SMC	Y	Y
1798	2-Jun	Norman	Goldthorpe	--	SS	0.42	0	A1	4069	000	12:12	0	--	SMC	Y	Y
1799	2-Jun	Norman	Goldthorpe	--	SS	0.42	0	A1	4069	000	12:18	0	--	SMC	Y	Y
1800	2-Jun	Norman	Goldthorpe	--	SS	0.42	0	A1	4069	000	12:20	0	--	SMC	Y	Y
1801	2-Jun	Norman	Goldthorpe	--	SS	0.42	0	A1	4069	000	12:24	0	--	SMC	Y	Y
1802	2-Jun	Norman	Goldthorpe	--	SS	0.42	0	A1	4069	000	12:28	0	--	SMC	Y	Y
1803	2-Jun	Norman	Goldthorpe	--	SS	0.42	0	A1	4069	000	12:31	0	--	SMC	Y	Y
1804	2-Jun	Norman	Goldthorpe	--	SS	0.42	0	A1	4069	000	12:32	0	--	SMC	Y	Y
1805	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	4069	000	12:41	0	--	SMC	Y	Y
1806	2-Jun	Goldthorpe	Norman	--	SS	0.42	0	A1	4069	000	12:45	0	--	SMC	Y	Y
1807	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	4050	000	12:48	0	--	SMC	Y	Y
1808	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	4050	000	12:50	0	--	SMC	Y	Y
1809	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	O	9030	000	12:55	0	--	SMC	Y	Y
1810	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	O	9030	000	12:58	0	--	SMC	Y	Y
1811	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	9040	000	13:11	0	--	SMC	Y	Y
1812	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	9040	000	13:15	0	--	SMC	Y	Y
1813	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	9040	000	13:16	0	--	SMC	Y	Y
1814	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	9040	000	13:24	0	--	SMC	Y	Y
1815	2-Jun	Goldthorpe	Goldthorpe	--	SS	0.42	0	A1	9040	000	13:25	0	--	SMC	Y	Y
1816	2-Jun	Norman	Goldthorpe	--	SS	0.42	0	A1	9040	000	13:31	0	--	SMC	Y	Y
1817	2-Jun	Goldthorpe	Goldthorpe	--	CS	0.42	0	A1	9040	000	13:49	0	--	SMC	Y	Y
1818	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	4069	000	14:02	0	--	SMC	N	Y
1819	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	4069	000	13:52	0	--	SMC	N	Y
1820	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	4069	000	14:09	0	--	SMC	Y	N
1821	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	4069	000	14:06	0	--	SMC	Y	N
1822	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	4069	000	14:11	0	--	SMC	Y	N
1823	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	4069	000	14:16	0	--	SMC	Y	N
1824	2-Jun	Norman	Goldthorpe	--	CS	0.42	0	A1	4069	000	14:21	0	--	SMC	Y	Y

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Incep-tor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operate	Config Operate	Audi-o	Video	DASE on	Motor on	Data saved	Notes	Config changes	
1825	2-Jun	Norman	Goldthorp	--	CS	0.42	0	A1	4069	000	14:28	0	--	SMC	Y	N	Y	lat smc on, DASE ON, kmy=60000, Kr2cf=1.5;kr2cf=1.5; light turbulence;kfwdcf=0	
1826	2-Jun	Norman	Goldthorp	--	CS	0.42	0	A1	4069	000	14:29	0	--	SMC	Y	Y	Y	lat smc on, DASE ON, kmy=60000, Kr2cf=1.5;kr2cf=1.5; light turbulence;kfwdcf=1	
1827	2-Jun	Norman	Goldthorp	--	CS	0.42	0	A1	4069	000	14:32	0	--	SMC	Y	Y	Y	lat smc on, DASE ON, kmy=60000, Kr2cf=1.5;kr2cf=1.5; light turbulence;kfwdcf=0;kfwdcf=1	
1828	2-Jun	Norman	Goldthorp	--	CS	0.42	0	A1	4069	000	14:34	0	--	SMC	Y	Y	Y	lat smc on, DASE ON, kmy=60000, Kr2cf=1.5;kr2cf=1.5; light turbulence;kfwdcf=1;kfwdcf=0	
1829	2-Jun	Norman	Goldthorp	--	CS	0.42	0	A1	4069	000	14:38	0	--	SMC	Y	Y	Y	lat smc on, DASE ON, kmy=60000, Kr2cf=1.5;kr2cf=1.5; light turbulence;kfwdcf=0;kfwdcf=1	
1830	2-Jun	Norman	Goldthorp	--	CS	0.42	0	A1	4069	000	14:41	0	--	SMC	Y	Y	Y	lat smc on, DASE ON, kmy=60000, Kr2cf=1.5;kr2cf=1.5; light turbulence;kfwdcf=0;kfwdcf=1 long SMC checkout Kc3=0.12	
1831	2-Jun	--	--	--	--	--	--	Turret	0.42	B1_0.2	0	9020	000	14:52	--	--	SMC	Y	
1832	2-Jun	--	--	--	--	--	--	Turret	0.42	B1_0.2	0	9020	000	14:54	--	--	SMC	Y	
1833	2-Jun	--	--	--	--	--	--	SS	0.42	B1_0.2	0	9020	000	15:04	--	--	SMC	Y	
1834	2-Jun	Borland	Nagaraja	--	--	--	--	SS	0.42	B1_0.2	0	9020	000	15:14	--	--	SMC	N	
1835	2-Jun	Borland	--	--	--	--	--	SS	0.42	B1_0.2	0	9020	000	15:20	--	--	SMC	N	
1836	2-Jun	Borland	--	--	--	--	--	SS	0.42	B1_0.2	0	9020	000	15:24	--	--	SMC	Y	
1837	2-Jun	Borland	--	--	--	--	--	SS	0.42	B1_0.2	0	9020	000	15:27	--	--	SMC	Y	
1838	2-Jun	Borland	--	--	--	--	--	SS	0.42	B1_0.2	0	9020	000	15:31	--	--	SMC	Y	
1839	2-Jun	Borland	--	--	--	--	--	SS	0.42	B1_0.2	0	9020	000	15:32	--	--	SMC	Y	
1840	2-Jun	Nagaraja	--	--	--	--	--	CS	0.42	B1_0.2	0	9020	000	15:36	--	--	SMC	N	
1841	2-Jun	Nagaraja	--	--	--	--	--	CS	0.42	B1_0.2	0	9020	000	15:40	--	--	SMC	Y	
1842	2-Jun	Nagaraja	--	--	--	--	--	CS	0.42	B1_0.2	0	9020	000	15:43	--	--	SMC	Y	
1843	2-Jun	Nagaraja	--	--	--	--	--	CS	0.42	B1_0.2	0	9020	000	15:48	--	--	SMC	Y	
1844	2-Jun	Borland	--	--	--	--	--	SS	0.42	B1_0.2	0	9020	000	15:48	--	--	SMC	Y	
1845	2-Jun	Borland	--	--	--	--	--	SS	0.42	B1_0.2	0	9020	000	15:53	--	--	SMC	N	
1846	2-Jun	Borland	--	--	--	--	--	SS	0.42	B1_0.2	0	9020	000	15:54	--	--	SMC	Y	
1847	2-Jun	Borland	--	--	--	--	--	SS	0.42	B1_0.2	A1	9020	000	16:02	--	--	SMC	Y	
1848	2-Jun	Borland	--	--	--	--	--	SS	0.42	B1_0.2	0	9020	000	16:07	--	--	SMC	N	
1850	2-Jun	Borland	--	--	--	--	--	SS	0.42	B1_0.2	0	9020	000	16:07	--	--	SMC	Y	
1866	3-Jun	Norman	Goldthorp	--	--	--	--	CS	0.42	B1_0.2	0	A1	4069	000	8:42	71	--	SMC	Y
1867	3-Jun	Norman	Goldthorp	--	--	--	--	CS	0.42	B1_0.2	0	A1	4069	000	8:45	71	--	SMC	Y
1868	3-Jun	Norman	Goldthorp	--	--	--	--	CS	0.42	B1_0.2	0	A1	4069	000	8:48	71	--	SMC	Y
1869	3-Jun	Norman	Goldthorp	--	--	--	--	CS	0.42	B1_0.2	0	A1	4069	000	8:52	71	--	SMC	Y
1870	3-Jun	Norman	Goldthorp	--	--	--	--	CS	0.42	B1_0.2	0	A1	4069	000	8:54	71	--	SMC	Y
1871	3-Jun	Borland	--	--	--	--	--	Turret	0.42	O	0	9020	000	10:58	--	--	SMC	N	
1878	3-Jun	Otto	--	--	--	--	--	DYNCK	0.42	O	0	9020	000	14:55	--	--	SMC	Y	
1879	3-Jun	Otto	--	--	--	--	--	DYNCK	0.42	O	0	9020	000	14:59	--	--	SMC	N	
1880	3-Jun	Otto	--	--	--	--	--	DYNCK	0.42	O	0	9020	000	15:05	--	--	SMC	Y	
1881	3-Jun	Otto	--	--	--	--	--	DYNCK	0.42	B1_0.20	O	9020	000	15:06	--	--	SMC	Y	
1882	3-Jun	Otto	--	--	--	--	--	DYNCK	0.42	O	0	9020	000	15:08	--	--	SMC	N	
1883	3-Jun	Otto	--	--	--	--	--	DYNCK	0.42	B1_0.20	O	9020	000	15:08	--	--	SMC	Y	

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Incep-tor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operator	Config	DASE	Motor on	Data saved	Data Notes	Config changes
1884	3-Jun	Otto	--	--	DYNCK 0.42	B1_0.20	0	9020	000	15:28	--	SMC	Y	N	Y	mex set 1 baseline, with smc, 250 Hz dyn check
1885	3-Jun	Otto	--	--	DYNCK 0.42	B1_0.20	0	9020	000	15:30	--	SMC	Y	N	Y	pulses with all points recorded;
1886	3-Jun	Otto	--	--	DYNCK 0.42	B1_0.20	0	9020	000	15:32	--	SMC	Y	N	Y	mex set 1 baseline, with smc, 125 Hz dyn check
1887	3-Jun	Otto	--	--	DYNCK 0.42	B1_0.20	0	9020	000	15:33	--	SMC	Y	N	Y	pulses with all points recorded; hardover
1888	3-Jun	Otto	--	--	DYNCK 0.42	B1_0.20	0	9020	000	15:35	--	SMC	Y	N	Y	pulses with all points recorded; cleanout run
1889	3-Jun	Otto	--	--	DYNCK 0.42	B1_0.20	0	9020	000	15:37	--	SMC	Y	N	Y	mex set 1 baseline, with smc, 62.5 Hz dyn check
1890	3-Jun	Otto	--	--	DYNCK 0.42	B1_0.20	0	9020	000	15:37	--	SMC	Y	N	Y	pulses with all points recorded; motion base velocity limits
1891	3-Jun	Otto	--	--	DYNCK 0.42	B1_0.20	0	9030	000	15:42	--	SMC	Y	N	Y	mex set 1 baseline, with smc, 250 Hz dyn check
1892	3-Jun	Otto	--	--	DYNCK 0.42	B1_0.20	0	9040	000	15:45	--	SMC	Y	N	Y	full deflection pulses with all points recorded;
1893	3-Jun	Otto	--	--	DYNCK 0.42	B1_0.20	0	9020	000	15:50	--	SMC	Y	N	Y	motion base velocity limits turned off; stable
1894	3-Jun	Otto	--	--	DYNCK 0.42	B1_0.20	0	9020	000	15:52	--	SMC	Y	N	Y	mex set 1 baseline, with smc, 250 Hz dyn check
1895	3-Jun	Otto	--	--	DYNCK 0.42	B1_0.20	0	9020	000	15:55	--	SMC	Y	N	Y	full deflection pulses with all points recorded;
1896	3-Jun	Otto	--	--	DYNCK 0.42	0	0	9020	000	15:58	--	SMC	Y	N	Y	motion base velocity limits turned off; stable
1897	3-Jun	Otto	--	--	DYNCK 0.42	0	0	9030	000	16:01	--	SMC	Y	N	Y	mex set 1 baseline, with smc, 250 Hz dyn check
1898	3-Jun	Otto	--	--	DYNCK 0.42	B1_0.20	0	9030	000	16:02	--	SMC	Y	N	Y	40% deflection pulses with all points recorded
1899	3-Jun	Otto	--	--	DYNCK 0.42	B1_0.20	0	9040	000	16:04	--	SMC	Y	N	Y	motion base velocity limits turned off; stable
1900	3-Jun	Otto	--	--	DYNCK 0.42	B1_0.20	0	9030	000	16:07	--	SMC	Y	N	Y	mex set 1 baseline, with smc, 250 Hz dyn check
1901	3-Jun	Otto	--	--	DYNCK 0.42	0	0	9040	000	16:08	--	SMC	Y	N	Y	10% deflection pulses with all points recorded
1902	3-Jun	Otto	--	--	DYNCK 0.44	0	0	9020	000	16:29	--	SMC	Y	N	Y	motion base velocity limits turned off; cleanup run
1903	3-Jun	Otto	--	--	DYNCK 0.44	0	0	9020	000	16:48	--	SMC	Y	N	Y	50% deflection pulses with all points recorded
1904	3-Jun	Otto	--	--	DYNCK 0.44	0	0	9020	000	16:53	--	SMC	Y	N	Y	no smc; negative stick pulse

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operator	DASE on	Motor on	Data saved	Notes	Config changes		
															Videocam	Audiocam	
1905	3-Jun	Otto	--	--	DYNCK	0.44	MB	0	9020	000	16.57	--	SMC	Y	N	Y	no smc; negative stick pulse; improved roll-off light turb; improved roll-off filter; no smc no response to pilot pitch
1906	3-Jun	Otto	--	--	DYNCK	0.44	O	0	9020	000	16.57	--	SMC	Y	N	Y	Y
1921	4-Jun	Jackson	--	--	Turret	0.44	IG	0	9020	000	8.35	--	SMC	Y	N	Y	Y
1923	4-Jun	Jackson	--	--	Turret	0.44	IG	0	9020	000	9.05	--	SMC	Y	N	Y	Y
1925	4-Jun	Borland	--	--	Turret	0.44	B1_0.20gh	0	9020	000	9.08	--	SMC	Y	N	Y	Y
1926	4-Jun	Borland	--	--	Turret	0.44	B1_0.20gh	0	9020	000	9.10	--	SMC	Y	N	Y	Y
1932	4-Jun	Jackson	--	--	Turret	0.44	IG	0	9020	000	9.27	--	SMC	Y	N	Y	no input; got ringing on canard no input; slowed down to 1/10 speed; hardover
1933	4-Jun	Jackson	--	--	Turret	0.44	IG	0	9020	000	9.43	--	SMC	Y	N	Y	canard turned off; flew from stick
1935	4-Jun	Jackson	--	--	DYNCK	0.44	B1_0.20gh	0	9020	000	9.47	--	SMC	Y	N	Y	half stick, 0.5 sec pulses (up/down) with nominal SMC gains
1936	4-Jun	Otto	--	--	DYNCK	0.44	O	0	9020	000	9.57	--	SMC	Y	N	Y	half stick, 0.5 sec pulses (up/down) with no SMC half stick, 0.5 sec pulses (up/down) with nominal SMC gains
1937	4-Jun	Otto	--	--	DYNCK	0.44	O	0	9020	000	9.58	--	SMC	Y	N	Y	no inputs - 15 sec stability check half stick, 0.5 sec pulses (up/down) with no SMC half stick, 0.5 sec pulses (up/down) with no SMC no inputs - 15 sec stability check
1938	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9030	000	10.01	--	SMC	Y	N	Y	mult forward gain by 2; unstable; wrong DASE mult forward gain by 2; unstable mult forward gain by 1.5 mult forward gain by 1.5 with longer run time mult forward gain by 1.5; run at 8 ms time step for SMC (two loops)
1939	4-Jun	Otto	--	--	DYNCK	0.44	O	0	9030	000	10.02	--	SMC	Y	N	Y	mult forward gain by 2; run at 8 ms time step for SMC (two loops)
1940	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9040	000	10.04	--	SMC	Y	N	Y	mult forward gain by 2; run at 8 ms time step for SMC (two loops)
1941	4-Jun	Otto	--	--	DYNCK	0.44	O	0	9040	000	10.04	--	SMC	Y	N	Y	mult forward gain by 2; run at 8 ms time step for SMC (two loops)
1942	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9040	000	10.04	--	SMC	Y	N	Y	mult forward gain by 2; run at 8 ms time step for SMC (two loops)
1943	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9021	000	10.09	--	SMC	Y	N	Y	mult forward gain by 2; unstable mult forward gain by 1.5 mult forward gain by 1.5 mult forward gain by 1.5 with longer run time mult forward gain by 1.5; run at 8 ms time step for SMC (two loops)
1944	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9021	000	10.10	--	SMC	Y	N	Y	mult forward gain by 2; unstable mult forward gain by 1.5 mult forward gain by 1.5 mult forward gain by 1.5 with longer run time mult forward gain by 1.5; run at 8 ms time step for SMC (two loops)
1945	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9021	000	10.13	--	SMC	Y	N	Y	mult forward gain by 2; unstable mult forward gain by 1.5 mult forward gain by 1.5 mult forward gain by 1.5 with longer run time mult forward gain by 1.5; run at 8 ms time step for SMC (two loops)
1946	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9021	000	10.16	--	SMC	Y	N	Y	mult forward gain by 2; unstable mult forward gain by 1.5 mult forward gain by 1.5 with longer run time mult forward gain by 1.5; run at 8 ms time step for SMC (two loops)
1947	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9021	000	10.17	--	SMC	Y	N	Y	mult forward gain by 2; run at 8 ms time step for SMC (two loops)
1948	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9021	000	10.19	--	SMC	Y	N	Y	mult forward gain by 2; run at 8 ms time step for SMC (two loops)
1949	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9030	000	10.20	--	SMC	Y	N	Y	mult forward gain by 2; run at 8 ms time step for SMC (two loops)
1950	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9040	000	10.21	--	SMC	Y	N	Y	mult forward gain by 2; run at 8 ms time step for SMC (two loops)
1951	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9021	000	10.23	--	SMC	Y	N	Y	mult forward gain by 4; run at 8 ms time step for SMC (two loops); unstable
1952	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9021	000	10.24	--	SMC	Y	N	Y	mult forward gain by 3; run at 8 ms time step for SMC (two loops); unstable
1953	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9021	000	10.25	--	SMC	Y	N	Y	mult forward gain by 3; run at 8 ms time step for SMC (two loops); unstable
1954	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9021	000	10.26	--	SMC	Y	N	Y	mult forward gain by 1; run at 8 ms time step for SMC (two loops)
1955	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9021	000	10.27	--	SMC	Y	N	Y	mult forward gain by 1; run at 8 ms time step for SMC (two loops)
1956	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9021	000	10.27	--	SMC	Y	N	Y	mult forward gain by 2.5; run at 8 ms time step for SMC (two loops); unstable
1957	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9021	000	10.28	--	SMC	Y	N	Y	mult forward gain by 3; run at 8 ms time step for SMC (two loops); unstable
1958	4-Jun	Otto	--	--	DYNCK	0.44	B1_0.20gh	0	9021	000	10.33	--	SMC	Y	N	Y	cleanup run light turb
1959	4-Jun	Otto	--	--	DYNCK	0.44	O	0	9021	000	10.34	--	SMC	Y	N	Y	repeat 1904; with smc; negative stick pulse; improved roll-off filter; no cmd output on canar
1960	4-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	10.47	--	SMC	Y	N	Y	repeat 1904; with smc; negative stick pulse; improved roll-off filter; hardover (only 2 of 3 instances of smc_mb_enable true)
1961	4-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	11.04	--	SMC	Y	N	Y	repeat 1904; with smc; negative stick pulse; improved roll-off filter; hardover
1966	4-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	14.49	--	SMC	Y	N	Y	George's new hand-coded SMC 1 SMC
1975	4-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	14.49	--	SMC	Y	N	Y	George's new hand-coded SMC 1 SMC

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1976	4-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	14.50	--	SMC	Y	Y
1977	4-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	14.51	--	SMC	Y	Y
1978	4-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	14.54	--	SMC	Y	N
1979	4-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	14.55	--	SMC	Y	Y
1980	4-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	14.56	--	SMC	Y	Y
1981	4-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	14.57	--	SMC	Y	N
1982	4-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	14.58	--	SMC	Y	Y
1983	4-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	15:01	--	SMC	Y	Y
1984	4-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	15:03	--	SMC	Y	Y
1985	4-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	15:04	--	SMC	Y	Y
1990	4-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	15:23	--	SMC	Y	N
1996	4-Jun	Otto	--	--	DYNCK	0.44	0	0	9021	000	16:05	--	SMC	Y	Y
1997	4-Jun	Otto	--	--	DYNCK	0.44	B1_0_20gei	0	9021	000	16:07	--	SMC	Y	Y
1998	4-Jun	Otto	--	--	DYNCK	0.44	B1_0_20gei	0	9021	000	16:09	--	SMC	Y	Y
1999	4-Jun	Otto	--	--	DYNCK	0.44	0	0	9021	000	16:11	--	SMC	Y	Y
2000	4-Jun	Otto	--	--	DYNCK	0.44	B1_0_20gei	0	9021	000	16:14	--	SMC	Y	Y
2001	4-Jun	Otto	--	--	DYNCK	0.44	B1_0_20gei	0	9021	000	16:15	--	SMC	Y	Y
2002	4-Jun	Otto	--	--	DYNCK	0.44	B1_0_20gei	0	9021	000	16:15	--	SMC	Y	Y
2003	4-Jun	Otto	--	--	DYNCK	0.44	B1_0_20gei	0	9021	000	16:22	--	SMC	Y	Y
2004	4-Jun	Otto	--	--	DYNCK	0.44	B1_0_20gei	0	9021	000	16:22	--	SMC	Y	Y
2005	4-Jun	Otto	--	--	DYNCK	0.44	B1_0_20gei	0	9021	000	16:24	--	SMC	Y	Y
2006	4-Jun	Otto	--	--	DYNCK	0.44	B1_0_20gei	0	9021	000	16:24	--	SMC	Y	Y
2007	4-Jun	Otto	--	--	DYNCK	0.44	B1_0_20gei	0	9021	000	16:31	--	SMC	Y	Y
2008	4-Jun	Otto	--	--	DYNCK	0.44	B1_0_20gei	0	9021	000	16:34	--	SMC	Y	Y
2009	4-Jun	Otto	--	--	DYNCK	0.44	B1_0_20gei	0	9021	000	16:35	--	SMC	Y	Y
2010	4-Jun	Otto	--	--	DYNCK	0.44	B1_0_20gei	0	9021	000	16:37	--	SMC	Y	Y
2011	4-Jun	Rowhani	--	--	SS	0.44	0	0	9021	000	16:58	--	SMC	Y	N
2012	4-Jun	Rowhani	--	--	SS	0.44	0	0	9021	000	17:01	--	SMC	Y	Y
2013	4-Jun	Rowhani	--	--	SS	0.44	B1_0_20gei	0	9021	000	17:12	--	SMC	Y	N
2014	4-Jun	Rowhani	--	--	SS	0.44	B1_0_20gei	0	9021	000	17:14	--	SMC	Y	Y
2015	4-Jun	Rowhani	--	--	SS	0.44	B1_0_20gei	0	9021	000	17:20	--	SMC	Y	N
2016	4-Jun	Rowhani	--	--	SS	0.44	B1_0_20gei	0	9021	000	17:21	--	SMC	Y	Y
2017	4-Jun	Rowhani	--	--	SS	0.44	0	0	9021	000	17:28	--	SMC	Y	Y
2021	5-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	8:42	--	SMC	Y	N
2022	5-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	8:46	--	SMC	Y	N
2023	5-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	8:47	--	SMC	Y	N
2024	5-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	8:48	--	SMC	Y	N
2025	5-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	8:49	--	SMC	Y	N
2026	5-Jun	Otto	--	--	DYNCK	0.44	0	0	9021	000	8:51	--	SMC	Y	Y
2027	5-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	8:52	--	SMC	Y	N
2028	5-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	8:53	--	SMC	Y	Y

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operator	DASEF on	Motor on	Data saved	Notes	Config changes	
															Videocam	Audiotest
2029	5-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	8.53	--	SMC	Y	N	Y
2030	5-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	9.03	--	SMC	Y	N	N
2031	5-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	9.04	--	SMC	Y	N	Y
2032	5-Jun	Jackson	--	--	Turret	0.44	MB	0	9021	000	9.05	--	SMC	Y	N	Y
2033	5-Jun	Jackson	--	--	Turret	0.44	MB	0	9021	000	9.09	--	SMC	Y	N	N
2034	5-Jun	Jackson	--	--	Turret	0.44	MB	0	9021	000	9.15	--	SMC	Y	N	N
2035	5-Jun	Jackson	--	--	Turret	0.44	MB	0	9021	000	9.18	--	SMC	Y	N	Y
2036	5-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	9.20	--	SMC	Y	N	Y
2037	5-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	9.24	--	SMC	Y	N	Y
2038	5-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	9.32	--	SMC	Y	N	Y
2039	5-Jun	Otto	--	--	DYNCK	0.44	0	0	9021	000	9.32	--	SMC	Y	N	N
2040	5-Jun	Otto	--	--	DYNCK	0.44	0	0	9021	000	10.00	--	SMC	Y	Y	Y
2041	5-Jun	Norman	Borland	--	SS	0.44	0	0	9021	000	10.06	72	SMC	Y	Y	Y
2042	5-Jun	Norman	Borland	--	SS	0.44	B1_0.20	0	9021	000	10.12	72	SMC	Y	Y	Y
2043	5-Jun	Norman	Borland	--	SS	0.44	B1_0.20	0	9021	000	10.19	72	SMC	Y	Y	Y
2044	5-Jun	Norman	Borland	--	SS	0.44	B1_0.20	0	9021	000	10.27	72	SMC	Y	Y	Y
2045	5-Jun	Norman	Borland	--	SS	0.44	B1_0.20	0	9021	000	10.31	72	SMC	Y	Y	Y
2046	5-Jun	Norman	Borland	--	SS	0.44	B1_0.20	0	9021	000	10.36	72	SMC	Y	Y	Y
2047	5-Jun	Norman	Borland	--	SS	0.44	B1_0.20	0	9021	000	10.42	72	SMC	Y	Y	Y
2048	5-Jun	Norman	Borland	--	SS	0.44	B1_0.20	0	9021	000	10.50	72	SMC	Y	Y	Y
2049	5-Jun	Norman	Borland	--	SS	0.44	0	0	4069	000	10.52	72	SMC	Y	Y	Y
2050	5-Jun	Norman	Borland	--	SS	0.44	B1_0.20	0	4069	000	10.55	72	SMC	Y	Y	Y
2051	5-Jun	Norman	Borland	--	SS	0.44	B1_0.20	A1	4069	000	10.57	72	SMC	Y	Y	Y
2052	5-Jun	Norman	Borland	--	SS	0.44	B1_0.20	A1	4069	000	11.00	72	SMC	Y	Y	Y
2053	5-Jun	Norman	Borland	--	SS	0.44	0	A1	4069	000	11.00	72	SMC	Y	Y	Y
2057	5-Jun	Norman	Barrett	--	SS	0.44	MB	0	9021	000	15.03	72	SMC	Y	Y	Y
2058	5-Jun	Norman	Barrett	--	SS	0.44	0	0	9021	000	15.11	72	SMC	Y	Y	Y
2059	5-Jun	Norman	Barrett	--	SS	0.44	MB	0	9021	000	15.17	72	SMC	Y	Y	Y
2061	5-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	15.38	72	SMC	Y	N	Y
2062	5-Jun	Otto	--	--	DYNCK	0.44	MB	0	9021	000	15.39	72	SMC	Y	N	Y
2063	5-Jun	Otto	--	--	DYNCK	0.44	IG	0	9021	000	15.41	72	SMC	Y	N	Y
2064	5-Jun	Otto	--	--	DYNCK	0.44	IG	0	9021	000	15.45	72	SMC	Y	N	N
2065	5-Jun	Otto	--	--	DYNCK	0.44	IG	0	9021	000	15.46	72	SMC	Y	N	N
2066	5-Jun	Otto	--	--	DYNCK	0.44	IG	0	9021	000	15.47	72	SMC	Y	N	N
2067	5-Jun	Otto	--	--	DYNCK	0.44	IG	0	9021	000	15.48	72	SMC	Y	N	N
2068	5-Jun	Otto	--	--	DYNCK	0.44	IG	0	9021	000	15.50	72	SMC	Y	N	N
2069	5-Jun	Otto	--	--	DYNCK	0.44	IG	0	9021	000	15.50	72	SMC	Y	N	N
2070	5-Jun	Otto	--	--	DYNCK	0.44	IG	0	9021	000	15.51	72	SMC	Y	N	N
2071	5-Jun	Otto	--	--	DYNCK	0.44	IG	0	9021	000	16.06	72	SMC	Y	N	N
2072	5-Jun	Otto	--	--	DYNCK	0.44	IG	0	9021	000	16.18	72	SMC	Y	N	N
2073	5-Jun	Otto	--	--	DYNCK	0.44	IG	0	9021	000	16.26	72	SMC	Y	N	Y
2074	5-Jun	Otto	--	--	DYNCK	0.44	IG	0	9021	000	16.27	72	SMC	Y	N	Y
2079	8-Jun	Otto	--	--	DYNCK	0.44	B1_0.20	0	9021	000	14.30	--	SMC	Y	N	Y
2080	8-Jun	Otto	--	--	DYNCK	0.44	B1_0.20	0	9021	000	14.31	--	SMC	Y	N	Y
2081	8-Jun	Otto	--	--	DYNCK	0.44	B1_0.20	0	9021	000	14.32	--	SMC	Y	N	Y
2088	8-Jun	Norman	--	--	CS	0.44	0	0	3384	308	14.45	73	Roll	N	Y	Y

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Inceptor	FCS Vers.	Lat FCS	Task	Config Operate	DASE on	Motion saved	Notes	Config changes		
													Test	Op >= 0.5	Op <= -0.5
2089	8-Jun	Norman	--	--	CS	0.44	0	0	3384	301	14.47	73	--	Roll	N
2090	8-Jun	Norman	--	--	CS	0.44	0	0	3384	315	14.50	73	--	Roll	N
2091	8-Jun	Norman	--	--	CS	0.44	0	0	3384	315	14.55	73	--	Roll	N
2092	8-Jun	Norman	--	--	CS	0.44	0	0	3384	301	15.00	73	--	Roll	N
2093	8-Jun	Norman	--	--	CS	0.44	0	0	3384	308	15.02	73	--	Roll	N
2094	8-Jun	Norman	--	--	CS	0.44	0	0	3384	305	15.05	73	--	Roll	N
2095	8-Jun	Norman	--	--	CS	0.44	0	0	3384	311	15.06	73	--	Roll	N
2096	8-Jun	Norman	--	--	CS	0.44	0	0	3385	208	15.11	73	--	Roll	N
2097	8-Jun	Norman	--	--	CS	0.44	0	0	3385	208	15.14	73	--	Roll	N
2098	8-Jun	Norman	--	--	CS	0.44	0	0	3385	205	15.17	73	--	Roll	N
2099	8-Jun	Norman	--	--	CS	0.44	0	0	3385	211	15.19	73	--	Roll	N
2100	8-Jun	Norman	--	--	CS	0.44	0	0	3385	201	15.22	73	--	Roll	N
2101	8-Jun	Norman	--	--	CS	0.44	0	0	3385	215	15.23	73	--	Roll	N
2102	8-Jun	Norman	--	--	CS	0.44	0	0	3385	000	15.30	73	--	SMC	N
2103	8-Jun	Norman	--	--	CS	0.44	0	0	9021	000	15.32	73	--	SMC	Y
2104	8-Jun	Norman	--	--	CS	0.44	B1_-0.20	A1	9021	000	15.39	73	--	SMC	Y
2106	8-Jun	Otto	--	--	DYNCK	0.44	B1_-0.20	0	9021	000	16.02	--	--	SMC	N
2107	8-Jun	Otto	--	--	DYNCK	0.44	B1_-0.20	0	9021	000	16.03	--	--	SMC	Y
2108	8-Jun	Otto	--	--	DYNCK	0.44	B1_-0.20	0	9021	000	16.03	--	--	SMC	N
2112	8-Jun	Gregory	--	--	Turret	0.44	IG	0	9021	000	16.12	--	--	SMC	N
2113	8-Jun	Gregory	--	--	Turret	0.44	IG	0	9021	000	16.13	--	--	SMC	N
2114	8-Jun	Gregory	--	--	Turret	0.44	IG	0	9021	000	16.14	--	--	SMC	N
2115	8-Jun	Gregory	--	--	Turret	0.44	IG	0	9021	000	16.15	--	--	SMC	N
2144	17-Jun	Norman	Jackson	--	SS	0.44	0	0	9020	000	14.44	74	--	SMC	Y
2145	17-Jun	Norman	Jackson	--	SS	0.44	0	0	4050	000	14.52	74	--	SMC	Y
2146	17-Jun	Norman	Jackson	--	SS	0.44	0	0	4050	000	14.55	74	--	SMC	Y
2147	17-Jun	Norman	Jackson	--	SS	0.44	B1_-0.20	0	4050	000	14.58	74	--	SMC	Y
2148	17-Jun	Norman	Jackson	--	SS	0.44	0	0	4050	000	15.02	74	--	SMC	Y
2150	17-Jun	Norman	Jackson	--	SS	0.44	0	0	3385	204	15.23	74	--	Roll	N
2151	17-Jun	Norman	Jackson	--	SS	0.44	0	0	3385	204	15.26	74	--	Roll	N
2152	17-Jun	Norman	Jackson	--	SS	0.44	0	0	3385	209	15.28	74	--	Roll	N
2153	17-Jun	Norman	Jackson	--	SS	0.44	0	0	3384	304	15.30	74	--	Roll	N
2154	17-Jun	Norman	Jackson	--	SS	0.44	0	0	3384	309	15.33	74	--	Roll	N
2159	17-Jun	Norman	Jackson	--	SS	0.44	0	0	4050	000	15.42	74	--	SMC	Y
2160	17-Jun	Norman	Jackson	--	SS	0.44	B1_-0.20	A1	4050	000	15.44	74	--	SMC	Y
2161	17-Jun	Norman	Jackson	--	SS	0.44	0	0	4069	000	15.50	74	--	SMC	Y
2162	17-Jun	Norman	Jackson	--	SS	0.44	B1_-0.20	A1	4069	000	15.53	74	--	SMC	Y
2163	17-Jun	Norman	Jackson	--	SS	0.44	0	0	9030	000	15.58	74	--	SMC	Y
2164	17-Jun	Norman	Jackson	--	SS	0.44	0	0	9030	000	16.02	74	--	SMC	Y
2165	17-Jun	Norman	Jackson	--	SS	0.44	B1_-0.20	A1	9030	000	16.03	74	--	SMC	Y
2166	17-Jun	Norman	Jackson	--	SS	0.44	B1_-0.20	0	9030	000	16.15	74	--	SMC	Y
2167	17-Jun	Norman	Jackson	--	SS	0.44	B1_-0.20	A1	9030	000	16.19	74	--	SMC	Y
2168	17-Jun	Rivers	Jackson	--	SS	0.44	0	0	4069	000	16.28	74	--	SMC	Y
2169	17-Jun	Rivers	Jackson	--	SS	0.44	0	0	4069	000	16.29	74	--	SMC	Y
2170	17-Jun	Rivers	Jackson	--	SS	0.44	0	0	4069	000	16.32	74	--	SMC	Y
2171	17-Jun	Rivers	Jackson	--	SS	0.44	0	0	4069	000	16.38	74	--	SMC	Y
2172	17-Jun	Rivers	Jackson	--	SS	0.44	0	0	4069	000	16.40	74	--	SMC	Y
2173	17-Jun	Rivers	Jackson	--	SS	0.44	0	0	9040	000	16.47	74	--	SMC	Y
2174	17-Jun	Rivers	Jackson	--	SS	0.44	0	0	9040	000	16.52	74	--	SMC	Y
2175	17-Jun	Rivers	Jackson	--	SS	0.44	B1_-0.20	A1	9040	000	16.55	74	--	SMC	Y
2179	24-Jun	Otto	--	--	DYNCK	0.44	0	0	4129	101	9.15	--	--	Roll	N
2180	24-Jun	Otto	--	--	DYNCK	0.44	0	0	4129	108	9.16	--	--	Roll	N
2181	24-Jun	Otto	--	--	DYNCK	0.44	0	0	4129	115	9.17	--	--	Roll	N
2182	24-Jun	Otto	--	--	DYNCK	0.44	0	0	4129	201	9.18	--	--	Roll	N
2183	24-Jun	Otto	--	--	DYNCK	0.44	0	0	3385	208	9.19	--	--	Roll	N

Run Number	Date	Pilot Flying	Pilot Not Flying	Observer	Incep-tor	FCS Vers.	Long FCS	Lat FCS	Task	Config Operat-	Config Operat-	Video	Audi-	DASE	Motor	Data Notes	Config changes
2184	24-Jun	Otto	--	--	DYNCK	0.44	0	0	3.385	215	9.20	--	Roll	N	Y	20% roll step check case for K. Rossito	
2185	24-Jun	Otto	--	--	DYNCK	0.44	0	0	3.384	301	9.22	--	Roll	N	Y	20% roll step check case for K. Rossito	
2186	24-Jun	Otto	--	--	DYNCK	0.44	0	0	3.384	308	9.24	--	Roll	N	Y	20% roll step check case for K. Rossito	
2187	24-Jun	Otto	--	--	DYNCK	0.44	0	0	3.384	315	9.27	--	Roll	N	Y	20% roll step check case for K. Rossito	

Appendix F: Task Identifiers and Flight Cards

Each of the tasks listed in the run log (appendix E) corresponded to an initial conditions description file which contained initial values for simulator states, such as airspeed, altitude, heading, and other simulation model parameters. Table F-1 below lists some of the initial conditions for these tasks, including a short identifier for the task.

Table F-1. Task Names and Initial Conditions

Task ID	Task Name	Weight (lbs)	C.G. (%)	Velocity	Altitude (ft)
2010	Standard Acoustic Takeoff	649,914	48.1	0	0
2011	Alternate Acoustic Takeoff	649,914	48.1	0	0
2030	Programmed Lapse Rate Takeoff with Gusts	649,914	48.1	0	0
3030	Profile Climb	649,914	48.1	0	0
3076	Subsonic Deceleration	384,862	53.2	345 kt	15,000
3084	Heading Change in Late Supersonic Cruise	384,862	53.2	M 2.4	63,700
3086	Heading Change in Low Altitude Cruise	384,862	53.2	345 kt	15,000
3384	Heading Change in Supersonic Cruise - Small Inputs	384,862	53.2	M 2.4	64,700
3385	Heading Change in Subsonic Cruise - Small Inputs	384,862	53.2	250 kt	25,000
4020	Nominal Approach & Landing	384,862	53.2	190 kt	1,500
4050	Precision Landing	384,862	53.2	157 kt	400
4069	Lateral Offset Landing	384,862	53.2	159 kt	750
4090	15 kt Crosswind Landing	384,862	53.2	159 kt	1,200
4093	25 kt Crosswind Landing	384,862	53.2	159 kt	1,200
4095	35 kt Crosswind Landing	384,862	53.2	159 kt	1,200
4129	Category I Approach & Landing	384,862	53.2	159 kt	1,500
5010	Stall at Idle Power	384,862	53.2	180 kt	10,000
5070	Emergency Descent	614,864	47.2	M 2.4	55,400
5080	Low-Speed Excursion in Climb	384,862	53.2	250 kt	10,000
5090	High-Speed Excursion in Descent	384,862	53.2	250 kt	20,000
7035	One Engine Out Takeoff	649,914	48.1	0	0
7036	One Engine Out Crosswind Takeoff	649,914	48.1	0	0

For some of the tasks, a formal flight card was developed to specify to the pilot what maneuver was to be performed within a specified tolerance of one or more parameters. These flight cards did not exist for some of the 8000 and 9000 series of tasks. The 8000 and 9000 series tasks, which appear in the run log listings (Appendix E), were considered experimental or special-purpose and were not intended to be evaluated by a pilot, or they represented experimental variations on a task for which a flight card existed.

The remainder of this appendix is composed of the formal flight cards that correspond to the tasks listed in table F-1 above.

2010 Standard Acoustic Takeoff

2-Jan-97 LJG

Flight Phase		MTE		Weather State		Failures	
2A. Takeoff		100 , Standard Acoustic Takeoff		1.1 Light Turb.		0 , No Failures	
Loading: 3 , M13, Max Taxi Weight @ fwd C.G., full aft fuselage fuel, partial wing fuel, max payload							
Headwind, kt		Turb/ Gusts		Approach Category		Rwy Surface	
0 Kt	0 Kt	Light/ None	Light/ None	0	Unlimited/ Unlimited	Dry, groomed	End of Runway on Centerline

ALT		Field	V1	170	PSCAS NORMAL	Target	Desired	Adequate
KEAS/M	0	Vr	186	RSCAS NORMAL	10±0.5	10±1		
GW	649.914	VLO	205	ATT	±5	±10		
C.G.	48.1	V2	202	HUD	±5	±10		
GEAR	DOWN	V2+10	212	F/D	±2	±4		
LEFT/TEF	Auto	Vmin	181	Config Ref/H Cyclic	0.0±0.2	1.0±0.2	1.0±0.3	
					8	8±0.5	8±1.0	

Procedure-Evaluation Pilot (PFE):

- Set brakes.
- Advance throttles to takeoff EPR.
- Release the brakes and maintain centerline during ground roll. PNF will make airspeed call-outs and monitor engine performance.
- At rotation speed (V_r), initiate rotation to the rotation pitch attitude (10 deg.).
- At positive climb rate, call "gear up".
- Adjust initial flight path to climb out at 8 deg / 14% (airspeed should increase). V2+10.
- Maintain runway heading throughout the cutback maneuver. G load of 1.0 ± 0.3 is acceptable.
- Terminate maneuver at 8.0 DME.

Procedure-Test Engineer / Pilot Not Flying (PNE):

- Confirm takeoff flap and reference speed bugs (V_c= V₂₊₁₀=212 kts) and initial climb gradient (8 deg/14%) are properly set. High-light the desired initial climb gradient (grad1) and prepare the secondary climb gradient to be used at cutback.
- Make airspeed call-outs at 100 knots, V₁, and V_r.
- Move gear handle to gear-up position, when requested by PFE.
- At 2.8 DME, call "cutback," change the commanded flight path angle to the secondary climb gradient (2.5 deg/4.4%) and engage autothrottles.

Runs: _____

Evaluation Segment:		Takeoff Roll, Rotation & Initial Climb Out - Acoustic		Long CHR		Lat/ Dir CHR	
Start Evaluation:		Stopped on Runway just prior to EPR cutback					

Evaluation Basis: The pilot is to evaluate the ability to track runway centerline, rotate promptly (without tail strike), liftoff, and capture the target climb speed. No PIOs or geometry strikes are allowed.

Performance Standards		Rotation pitch attitude (deg)		Deviation from climb speed (kt)		Bank Angle Control (deg)	
Runway Heading Deviation (deg)		0		0		±2	
Load Factor (g)		0		1.0±0.2		1.0±0.3	
Climbout Flight Path Angle (deg)		8		8±0.5		8±1.0	

Evaluation Segment:		EPR Cutback		Long CHR		Lat/ Dir CHR	
Start Evaluation:		Initiation of EPR cutback					

Evaluation Basis: The pilot is to evaluate the ability to maintain runway heading with minimal roll angle. No PIOs are allowed. Also evaluated is the ability to maintain runway heading with minimal roll angle.

Performance Standards		Deviations from Climb Airspeed (kt)		Bank Angle Control (deg)		Runway Heading Deviation (deg)	
Load Factor (g)		0		±5		±2	
Climbout Flight Path Angle (deg)		0		±5		±2	
		1.0±0.2		1.0±0.3		1.0±0.3	
		2.5		2.5±0.5		2.5±1.0	

2010

2010

Standard Acoustic Takeoff - alternate procedure

Flight Phase		MTE		Weather State		Failures	
2A. Takeoff		100. Standard Acoustic Takeoff		1.1 Light Turb.		0. No Failures	
Loading:		3. M13. Max Taxi Weight @ fwd C.G., full aft fuselage fuel, partial wing fuel, max payload					
Head/Wind, kt		Turb/Gusts		Approach Category			
0 Kt/ 0 Kt		Light/ None		0			
KEAS/M GW C.G. GEAR LEFT/TEF		Field 0 VLO 649.914 V2 48.1 DOWN V2+10		V1 170 Vr 186 V2 205 F/D 212		PSCAS NORMAL RSCAS NORMAL A/T ON HUD TO spd mode TO spd mode Config Ref H Cyclic 3	
Note: This maneuver to be performed with manual thrust and flaps.							

Procedure—Evaluation Pilot (PF):

- Set brakes.
- Advance throttles to takeoff EPR.
- Release the brakes and maintain centerline during ground roll. PNF will make airspeed call-outs and monitor engine performance.
- At rotation speed (V_r), initiate rotation to follow rotation rate pitch guidance indicators. Utilize HUD guidance to preclude tail strikes.
- At positive climb-rate, call "gear up". Follow velocity vector guidance symbol to intercept and maintain speed and extended runway centerline.
- When established at V2+10, PNF takes control of the throttles.
- Maintain target climb airspeed and runway heading throughout cutback maneuver.
- Terminate maneuver at 8.0 DME to record data for acoustic calculations.

Procedure—Test Engineer / Pilot Not Flying (PNF):

- Confirm initial conditions.
- Make airspeed call-outs at 100 knots, V₁, and V_r.
- Move gear handle to gear-up position, when requested by PF.
- Monitor gear retraction and automatic device retraction.
- Make distance call-outs at 2.6 and 2.7 DME. At 2.8 DME, call "cutback" and manually retard throttles to cutback EPR (56%) over an approximately 7 second interval.
- Maintain cutback condition until 8.0 DME for acoustic calculations.

Date: _____**Pilot:** _____**Runs:** _____**Long CHR****Lat / Dir CHR**

Evaluation Segment:	Takeoff Roll, Rotation & Initial Climb Out
Start Evaluation:	Stopped on Runway
End Evaluation:	Just prior to EPR cutback

Evaluation Basis: The pilot is to evaluate the ease of tracking the runway centerline with rudder pedals alone as the aircraft accelerates during the takeoff roll. The pilot is to evaluate the control of the rotation and capability to track the pitch rate guidance indicators, and the ability to follow velocity-vector guidance once airborne. No PIO is allowed. No geometry strikes are allowed.

Performance Standards		Target	Desired	Adequate
Runway Centerline Deviation, on ground (ft)		0	+10	+27
Rotation Pitch Rate Control, on ground (deg)		generated	<±0.5 bracket 90% of time (+1.2 deg/s)	<±1 bracket 90% of time (+0.6 deg/s)
Longitudinal velocity vector control, airborne (deg)		generated	<±1 V-vector height 90% of time	<±2 V-vector width 90% of time
Lateral velocity vector control, airborne (deg)		generated	<±1 V-vector width 90% of time	<±2 V-vector width 90% of time
Deviation from climb speed, after V _c intercept (kt)		0	+5	+10
Bank Angle Control, airborne (deg)		0	+5	+10
Runway Heading Deviation, airborne (deg)		0	+2	+4

Evaluation Segment:	EPR Cutback - PLR	Long CHR	Lat / Dir CHR
Start Evaluation:	Initiation of second EPR cutback		
End Evaluation:	8.0 DME		

Evaluation Basis: The pilot is to evaluate the ability to maintain the climb airspeed. Also evaluated is the ability to maintain runway heading with minimal roll angle. No PIO is allowed.

Performance Standards		Target	Desired	Adequate
Longitudinal velocity vector control (deg)		generated	<±1 V-vector height 90% of time	<±2 V-vector width 90% of time
Lateral velocity vector control (deg)		generated	<±1 V-vector width 90% of time	<±2 V-vector height 90% of time
Deviation from Climb Airspeed (kt)		0	+5	+10
Bank Angle Control (deg)		0	+5	+10
Runway Heading Deviation (deg)		0	+2	+4

Acoustic (Prog Lapse Rate) takeoff

Flight Phase		MTE		Weather State		Failures		Pilot:		Date:		Runs:	
2A. Takeoff		102. Programmed Lapse Rate Takeoff		12. Moderate Turb. w/Gusts		0. No Failures		Long CHR		Lat/ Dir CHR			
Loading: 3. M13. Max Taxi Weight @ fwd C.G. full aft fuselage fuel, partial wing fuel, max payload								Evaluation Segment: Takeoff Roll, Rotation & Initial Climb Out - PLR					
Head/X Wind, kt	Turb/ Gusts	Approach Category	Ceiling/ Visibility	Rwy Surface	Initial Position			Start Evaluation: Stopped on Runway		End Evaluation: just prior to second EPR cutback			
0 Kt/ 0 Kt	Moderate/ None	0	Unlimited/ Unlimited	Dry, grooved	End of Rwy, on centerline			Evaluation Basis: The pilot is to evaluate the ease of tracking the runway centerline with rudder pedals alone as the aircraft accelerates during the takeoff roll. The pilot is to evaluate the control of the rotation and capability to track the pitch rate guidance indicators, and the ability to follow velocity-vector guidance once airborne. No PIO is allowed. No geometry strikes are allowed.					
KEAS/M GEAR DOWN		ALT Field 0 VLO 48.1 Vclimb Auto	V1 170 Vr 186 V2 205 VD 232 F/D	PSCAS NORMAL RSCAS NORMAL A/T HUD TO grad. mode	Normal			Performance Standards		Target		Desired	
GW 649.914 C.G. 48.1		0	0	ON ON	Takeoff EPR (10): Max; First cutback speed (VCUT1): 18°; Delta time first cutback: 7 seconds;First cutback thrust level (T1): 75%			Runway Centerline Deviation, on ground (ft)		0		Adequate	
GEAR DOWN		181	Config Ref H Cyc 3					Rotation Pitch Rate Control, on ground (deg)		generated		<±0.5° bracket 90% of time (+1.2 deg/s)	
LEFT/TEF								Longitudinal velocity vector control, airborne (deg)		generated		<±1 V-vector height 90% of time	
								Lateral velocity vector control, airborne (deg)		generated		<±2 V-vector width 90% of time	
								Bank Angle Control, airborne (deg)		0		±5	
								Runway Heading Deviation, airborne (deg)		0		±2	
										Target		Long CHR	
								Initiation of second EPR cutback					
								Start Evaluation: 8.0 DME					
								End Evaluation:					
								Evaluation Segment: The pilot is to evaluate the ability to maintain the climb airspeed. Also evaluated is the ability to maintain runway heading with minimal roll angle. No PIO is allowed.					
								Performance Standards		Target		Desired	
								Longitudinal velocity vector control (deg)		generated		<±1 V-vector height 90% of time	
								Lateral velocity vector control (deg)		generated		<±1 V-vector width 90% of time	
								Deviation from Climb Airspeed (kt)		0		±5	
								Bank Angle Control (deg)		0		±5	
								Runway Heading Deviation (deg)		0		±2	
										Target		Long CHR	
								Initiation of second EPR cutback					
								Start Evaluation: 8.0 DME					
								End Evaluation:					
								Evaluation Segment: The pilot is to evaluate the ability to maintain the climb airspeed. Also evaluated is the ability to maintain runway heading with minimal roll angle. No PIO is allowed.					
								Performance Standards		Target		Desired	
								Longitudinal velocity vector control (deg)		generated		<±1 V-vector height 90% of time	
								Lateral velocity vector control (deg)		generated		<±1 V-vector width 90% of time	
								Deviation from Climb Airspeed (kt)		0		±5	
								Bank Angle Control (deg)		0		±5	
								Runway Heading Deviation (deg)		0		±2	
										Target		Lat/ Dir CHR	
								Initiation of second EPR cutback					
								Start Evaluation: 8.0 DME					
								End Evaluation:					

3030 **Profile Climb**
Date: _____ **Pilot:** _____ **Runs:** _____

Flight Phase								MTE		Weather State		Failures	
X. Various				210. Profile Climb		0. No Weather		0. No Failures					
Loading: X. Misc. - Weight & CG varies													
Head, kt	Turb/ Gusts	Approach Category	Ceiling/ Visibility	Rwy Surface	Initial Position								
0 Kt	None/ None	0	Unlimited/ Unlimited	Dry, grooved	End of Rwy, on centerline								
0 Kt													

ALT/M		Field		V1		154		PSCAS		NORMAL		Abnormals/Exceptions	
KEAS/M	0	Vr	Vr	166	RSCAS	NORMAL	NORMAL	A/T	OFF	ON	ON	Fuel Burn Enabled; Thrust Multiplier set to 1.09	
GW	Various	VLO	190	194	HUD	ON	ON						
C.G.	Various	V2	194	204	F/D	ON	ON						
GEAR	DOWN	V2+10	204	Config	Ref/H Cyclic								
LEF/TEF	Auto	Vmin	155										

Procedure-Evaluation Pilot (PE):

1. Set brakes.
2. Advance throttles to takeoff EPR.
3. Release the brakes and maintain centerline during ground roll. PNF will make airspeed call-outs, and monitor engine performance.
4. At rotation speed (V_r), initiate rotation to the lift-off pitch attitude. After liftoff, continue rotation until the target climb airspeed and pitch attitude are captured.
5. At positive climb rate, call "gear-up".
6. Follow flight director and altitude-velocity display guidance until 2.3 M is reached.

Procedure-Test Engineer / Pilot Not Flying (PNF):

1. Confirm initial conditions.
2. Make airspeed callouts at 100 knots, V_1 , and V_r .
3. Move gear handle to gear-up position, when requested by PE.

Evaluation Segment:		Profile Climb		Start Evaluation:		End Evaluation:		Lat/ Dir CHR	
Head	X	Altitude	2.3M	2.3M					

Evaluation Basis: The pilot is to check the handling qualities in profile climb. Evaluate ease of following desired airspeed and attitude.

Performance Standards		Target		Desired		Adequate	
Bank Angle Control (deg)		0		0		+5	+10
Deviation in Heading (deg)		0		0		+2	+5

3030**3030**

Subsonic Decel**3076****Date:****Pilot:****Runs:**

Subsonic Decel					
Flight Phase	MTE		Weather State		Failures
12A. Low Altitude Cruise/Hold	230. Airspeed Change		1. Light Turb.		0. No Failures
Loading: 7. MFC- Final Cruise condition					
Head/WX	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position
Wind, kt 0 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, grooved	N/A
ALT KEAS/M	EPR R/C	Trim 0	PSCAS RSCAS	NORMAL NORMAL	Target
GW 350	384.862		A/T HUD	OFF ON	Adequate
C.G. GEAR	53.2 UP		F/D Config	OFF Ref H Cyclic 3	
LEF/TEF	Auto				

Procedure-Evaluation Pilot (PF):

1. PF establishes straight and level flight at the noted conditions.
2. PF smoothly reduces power to decelerate the airplane to 250 KEAS (or to the highest standard airspeed/Mach for the flight condition) while maintaining altitude, heading and wings level.
3. Stabilize at 250 KEAS.
4. PF smoothly increases power to return to initial airspeed, while maintaining altitude, heading, and bank angle.
5. Thrust may be adjusted to assist in the smooth performance of this maneuver.

Procedure-Test Engineer / Pilot Not Flying (PNF):

1. Confirm initial conditions.

Evaluation Segment: Airspeed Change in Level Flight (Subsonic)		Long CHR	Lat/ Dir CHR
Start Evaluation:		Steady Flight at Initial Constant Airspeed	
End Evaluation:		Steady Flight at New Constant Airspeed	
Evaluation Basis: Check ability to adjust airspeed during normal operations. Check for undesirable airspeed coupling.			
Performance Standards	Deviation in Bank Angle (deg)	Deviation in Altitude (ft)	Deviation in Heading (deg)
Overshoots of Target Airspeed/Mach			

3084 Heading Change in Supersonic Cruise - A/T off

Flight Phase		MTE		Weather State		Failures		Runs:									
7C. Supersonic Cruise		240. Heading Change		1. Light Turb.		0. No Failures											
Loading: 7. MTC - Final Cruise condition																	
Head/X Wind, kt 0 Kt 0 Ki																	
Turb/Gusts Light/None																	
Approach Category 0																	
Ceiling/Visibility Unlimited/																	
Rwy Surface Dry, grooved																	
Initial Position N/A																	
Evaluation Segment: Heading Change in Level Flight with A/T off (Supersonic)																	
Start Evaluation: Straight Flight on Initial Heading																	
End Evaluation: Straight Flight on New Heading																	
Evaluation Basis: Evaluate handling qualities in turning flight. Perform maneuver with smooth roll-in and roll-out, with no tendency to oscillate or hunt for target bank angle throughout the maneuver.																	
Performance Standards																	
Deviation from Target Bank Angle in Turn (deg) 0																	
Deviation in Altitude (ft) 0																	
Deviation in Mach 0.02																	
Deviation from Target Heading at End of Turn (deg) 0																	
Pilot-Induced Oscillations (PIO) No PIO																	
Not Divergent																	

Procedure-Evaluation Pilot (PF):

- Establish straight and level flight at indicated conditions on a cardinal heading.
- Aggressively maneuver into and out of a 20° turn to the RIGHT using a 15° bank angle while maintaining airspeed and level flight. Thrust may be adjusted if necessary. Accept altitude loss to maintain Mach if required.
- Repeat maneuver to the LEFT using 30° bank.
- Repeat maneuver using opposite directions of turn.

Procedure-Test Engineer / Pilot Not Flying (PNF):

- Confirm initial conditions.
- Monitor any performance indicators that will not be automatically reported at the end of the run.

Heading Change in Low Altitude Cruise - A/T off

3086

Flight Phase				MTE	Weather State	Failures
12A. Low Altitude Cruise/Hold	240. Heading Change	1.1. Light Turb.	0. No Failures			
Loading: 7. MFC- Final Cruise condition						
Head/X	Turb/ Gusts	Approach Category	Ceiling/ Visibility	Rwy Surface	Initial Position	
Wind, kt 0 Kt/ 0 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, grooved	N/A	

ALT				EPR Trim	PSCAS RSCAS	NORMAL NORMAL	Abnormals/Exceptions:
KEAS/M 350	R/C	0		A/T		OFF ON	
GW 384.862				HUD		OFF ON	
C.G. 53.2	UP			F/D		Config Ref/H Cyclic	
GEAR Auto				Config Ref/H Cyclic			

Procedure-Evaluation Pilot (PF):

- Establish straight and level flight at indicated conditions on a cardinal heading.
- Aggressively maneuver into and out of a 60° turn to the RIGHT using a 30° bank angle while maintaining airspeed and level flight. Thrust may be adjusted if necessary.
- Repeat maneuver to the LEFT.
- Repeat maneuver using opposite directions of turn.

Procedure-Test Engineer /Pilot Not Flying (PNF):

- Confirm initial conditions.

Date: _____ Pilot: _____ Runs: _____

Evaluation Segment: Heading Change in Level Flight with A/T off (Subsonic)				Long CHR	Lat/ Dir CHR
Start Evaluation:	Straight Flight on Initial Heading				
End Evaluation:	Straight Flight on New Heading				
Evaluation Basis:	Evaluate handling qualities in turning flight. Perform maneuver with smooth roll-in and roll-out, with no tendency to oscillate or hunt for target bank angle throughout the maneuver.				
Performance Standards	Target	Desired	Adequate		
Deviation from Target Bank Angle in Turn (deg)	0	+2	+5		
Deviation in Altitude (ft)	0	+1200	+400		
Deviation in Airspeed (KEAS)	0	+5	+10		
Deviation from Target Heading at End of Turn (deg)	0	+2 (0 overshoots)	+5 (≤1 overshoot)		
Pilot-Induced Oscillations (PIO)	No PIO	No PIO	Not Divergent		

Heading Change in Subsonic Cruise - Small Inputs

Flight Phase		MTC		Weather State		Failures					
12B. Mid Altitude Cruise/Hold		240. Heading Change		1. Light Turb.		0. No Failures					
Loading: 7. MTC - Final Cruise condition											
Head/X Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position		N/A				
0 Kt/ 0 Kt	Light/ None.	0	Unlimited/ Unlimited	Dry, grooved							
Abnormals/Exceptions:											
None.											

Procedure-Evaluation Pilet (PE):

- Establish straight and level flight at indicated conditions on a cardinal heading.**

 1. Establish straight and level flight at indicated conditions on a cardinal heading.
 2. Execute a heading change of 10° to the **RIGHT** while attaining a bank angle of 15° (Do not use Rudder Pedals).
 3. Once stabilized to within tolerances return to the original heading using the same technique.

Dynamical Test Functions / Dilatant Flows (BNT)

- Procedure—test Engineer / Pilot Not Flying (P.N.F.):**

 1. Confirm initial conditions.
 2. Monitor any performance indicators that will not be automatically reported at the end of the run.

Date: _____
Pilot: _____
Run:

Evaluation Segment:		Heading Change in Level Flight with A/T on (Subsonic)	Long CHR	Lat / Dir CHR
Start Evaluation:		Straight Flight on Initial Heading		
End Evaluation:		Straight Flight on New Heading		
Evaluation Basis: Evaluate handling qualities in turning flight. Perform maneuver with smooth roll-in and roll-out, with no tendency to oscillate or hunt for target bank angle throughout the maneuver.				
Performance Standards	Target	Desired	Adequate	Divergent
Deviation from Target Bank Angle in Turn (deg)	0	± 2	± 5	
Deviation in Altitude (ft)	0	+200	+400	
Deviation from Target Heading at End of Turn (deg)	0	± 2 (0 overshoots)	± 5 (≤ 1 overshoot)	
Pilot-Induced Oscillations (PIO)	No PIO	No PIO	No PIO	Not Divergent

A vertical line on the left side of the page, with three black circular dots aligned vertically to its right.

4020 Nominal Approach & Landing

Date: _____ Pilot: _____ Runs: _____

Flight Phase	MTE	Weather State	Failures	
15A. Initial Approach Fix	313, Complete Approach and Landing	1.1 Light Turb.	0. No Failures	
Loading: 7. MEC - Final Cruise condition				
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface
0 Kt	Light/None	0	Unlimited/Unlimited	Dry, grooved
Initial Position				
3 nm outside OM: On course for 30° intercept of LOC, 4,500 right of centerline				

ALT	1,500	Vapp	159	PSCAS	NORMAL	Target	Desired	Adequate
KEAS/M	190	Vref	154	RSCAS	NORMAL			
GW	384,862	Vg/a	159	A/T	ON			
C.G.	53.2	Vmin	125	HUD	ON			
GEAR	UP			F/D	OFF			
LEFT/TEF	Auto			Config	Ref H Cyclic 3			

Procedure—Evaluation Pilot (PF):

1. Establish aircraft in steady level flight at the noted conditions, on intercept course for LOC.
2. Slow to Vapp when instructed by PNF.
3. Capture LOC. Track LOC to G/S intercept and capture G/S.
4. Disconnect autothrottles at 50 ft AGL.
5. Manually retard throttles and execute a flare to touchdown at the target point on the runway.
6. After touchdown, retard throttles to idle and lower the nosewheel to the runway.

Procedure—Test Engineer / Pilot Not Flying (PNF):

1. Confirm initial conditions.
2. Set Vapp as commanded speed at DME 7.0
3. 1/2 dot before G/S capture, call "Gear Down" and move gear handle to the down position

Evaluation Segment:		Start Evaluation:		End Evaluation:					
Glideslope and Localizer Intercept		1,500 ft, Final Approach Speed, Level		200 ft AGL, Landing Speed, Descending					
Evaluation Basis: Evaluate the ability to accurately maneuver onto the final approach path and maintain nominal approach profile and speed at low altitudes. Attained trimmed flight before the middle marker (approximately 0.5 nm from the end of the runway).									
Performance Standards									
Deviation from Final Approach Airspeed (kt)		0		±5	±10				
Deviation from Glideslope (dots)		0		±0.5	±1.0				
Deviation from Localizer (dots)		0		±0.3	±1.0				
Evaluation Segment:		Start Evaluation:		End Evaluation:					
Precision Landing		200 ft AGL, Landing Speed, Descending		Nosewheel touchdown					
Evaluation Basis: Evaluate handling qualities in landing. For desired performance, there should be no tendency to PIO or bubble in pitch or roll. There should also be no tendency to float or bounce after touchdown. There should be no geometry strikes on touchdown.									
Performance Standards									
Deviation from Approach Airspeed at 50 ft (kt)		0		±5	±10				
Deviation from Runway Heading at touchdown (deg)		0		±3	±6				
Longitudinal distance from threshold at touchdown (ft)		1250		1000-1500	750-2250				
Lateral offset from runway centerline at touchdown (ft)		0		±10	±27				
Sink Rate at touchdown (ft/sec)		<1		≤4	≤7				
Maximum Bank Angle below 50 ft AGL (deg)		0		±5	±7				
Pilot-Induced Oscillations (PIO):		No PIO		No Divergent					
Geometry Strikes (tail, engine nacelle, wing tip)		No Strikes		No Strikes					

Precision Landing

4050

Date:

Pilot:

Runs:

Flight Phase		MTE		Weather State		Failures							
17A. Landing		303, Precision Landing		1. Light Turb.		0. No Failures							
Loading: 7. MTC - Final Cruise condition													
Headwind: None													
Wind: 0 Kt													
Turb/Gusts: Light/None													
Category: 0													
Approach: Unlimited													
Ceiling/Visibility: Unlimited													
Rwy Surface: Dry, grooved													
Initial Position: 400 ft AGL; On LOC & G/S													

ALT	AGL	Vapp	157	PSCAS	NORMAL	Abnormals/Exceptions:
KEAS/M	157	Vref	154	RSCAS	NORMAL	None.
GW	384.862	V ^{g/a}	159	A/T	ON	
C.G.	53.2	V _{min}	125	HUD	ON	
GEAR	DOWN			F/D	Off	
LEFT/F	Auto			Config	Ref/H Cyclic	3

Procedure-Evaluation Pilot (PE):

1. PF establishes aircraft in steady descending flight at the noted conditions.
2. PF tracks G/S and LOC using HUD.
3. At appropriate altitude, PF maneuvers to touchdown on the aim point on runway with a normal flare and landing.
4. After touchdown, lower the nosewheel to the runway while retarding thrust to idle.
5. After nosewheel touchdown, apply normal braking until below 80 knots, maintaining runway centerline.

Procedure-Test Engineer / Pilot Not Flying (PNF):

1. Confirm initial conditions.

Flight Phase		MTE		Weather State		Failures							
17A. Landing		303, Precision Landing		1. Light Turb.		0. No Failures							
Loading: 7. MTC - Final Cruise condition													
Headwind: None													
Wind: 0 Kt													
Turb/Gusts: Light/None													
Category: 0													
Approach: Unlimited													
Ceiling/Visibility: Unlimited													
Rwy Surface: Dry, grooved													
Initial Position: 400 ft AGL; On LOC & G/S													

Flight Phase		MTE		Weather State		Failures							
17A. Landing		303, Precision Landing		1. Light Turb.		0. No Failures							
Loading: 7. MTC - Final Cruise condition													
Headwind: None													
Wind: 0 Kt													
Turb/Gusts: Light/None													
Category: 0													
Approach: Unlimited													
Ceiling/Visibility: Unlimited													
Rwy Surface: Dry, grooved													
Initial Position: 400 ft AGL; On LOC & G/S													

Flight Phase		MTE		Weather State		Failures							
17A. Landing		303, Precision Landing		1. Light Turb.		0. No Failures							
Loading: 7. MTC - Final Cruise condition													
Headwind: None													
Wind: 0 Kt													
Turb/Gusts: Light/None													
Category: 0													
Approach: Unlimited													
Ceiling/Visibility: Unlimited													
Rwy Surface: Dry, grooved													
Initial Position: 400 ft AGL; On LOC & G/S													

Flight Phase		MTE		Weather State		Failures							
17A. Landing		303, Precision Landing		1. Light Turb.		0. No Failures							
Loading: 7. MTC - Final Cruise condition													
Headwind: None													
Wind: 0 Kt													
Turb/Gusts: Light/None													
Category: 0													
Approach: Unlimited													
Ceiling/Visibility: Unlimited													
Rwy Surface: Dry, grooved													
Initial Position: 400 ft AGL; On LOC & G/S													

Flight Phase		MTE		Weather State		Failures							
17A. Landing		303, Precision Landing		1. Light Turb.		0. No Failures							
Loading: 7. MTC - Final Cruise condition													
Headwind: None													
Wind: 0 Kt													
Turb/Gusts: Light/None													
Category: 0													
Approach: Unlimited													
Ceiling/Visibility: Unlimited													
Rwy Surface: Dry, grooved													
Initial Position: 400 ft AGL; On LOC & G/S													

Flight Phase		MTE		Weather State		Failures							
17A. Landing		303, Precision Landing		1. Light Turb.		0. No Failures							
Loading: 7. MTC - Final Cruise condition													
Headwind: None													
Wind: 0 Kt													
Turb/Gusts: Light/None													
Category: 0													
Approach: Unlimited													
Ceiling/Visibility: Unlimited													
Rwy Surface: Dry, grooved													
Initial Position: 400 ft AGL; On LOC & G/S													

Flight Phase		MTE		Weather State		Failures							
17A. Landing		303, Precision Landing		1. Light Turb.		0. No Failures							
Loading: 7. MTC - Final Cruise condition													
Headwind: None													
Wind: 0 Kt													
Turb/Gusts: Light/None													
Category: 0													
Approach: Unlimited													
Ceiling/Visibility: Unlimited													
Rwy Surface: Dry, grooved													
Initial Position: 400 ft AGL; On LOC & G/S													

Flight Phase		MTE		Weather State		Failures	

4069 IAG Lateral Offset Landing

Flight Phase	MTE	Weather State	Failures
15B. Maneuver to Final Approach Fix	314. Approach and Landing from Lateral Offset	11. Light Turb. w/Gusts	0. No Failures
Loading:	7. MFC - Final Cruise condition		
Headwind, kt	Turb/ Gusts	Approach Category	Ceiling/ Visibility
0 Kt	Light/ None	0	Unlimited/ Unlimited/ grooved

ALT	1,500	Vapp	159	PSCAS	NORMAL	Abnormal/Exceptions:
KEAS/M	159	Vref	154	RSCAS	NORMAL	ILS localizer should be offset 300 feet to one side of the runway centerline, 1581 feet from the runway threshold, and the glideslope set to 2.50;.
GW	384.862	Vg/a	159	A/T	ON	
C.G.	53.2	Vmin	125	HUD	ON	
GEAR	DOWN			F/D	OFF	
LEFT/TEF	Auto			Config	Ref H Cyclic 3	

Note: Procedure should be repeated for a total of 3 approaches and landings. Turbulence and discrete gusts added on second and third approaches.

Procedure-Evaluation Pilot (PE):

- Establish aircraft in steady level flight on downwind, dog leg, or straight-in for LOC capture, as called for by test engineer, for G/S intercept.
- Maintain Vapp.
- Establish turn at no less than 3 miles from runway threshold and descend in altitude as required to track LOC to G/S intercept and capture G/S.
- Track LOC and G/S using HUD, following the offset localizer raw data.
- When PNF calls "Correct", PF visually maneuvers as required to correct for the lateral offset and set up for a touchdown at the target point on the runway.
- Disconnect autothrottles at 50 ft AGL.
- Manually adjust throttles as required and execute a flare to touchdown at the target point on the runway.
- If not in TIFS, after touchdown, retard throttles to idle and lower the nosewheel to the runway.

Procedure-Test Engineer / Pilot Not Flying (PNF):

- Confirm initial conditions.
- During approach, PNF monitors any performance indicators that will not be automatically reported at the end of the run.
- At 250 ft AGL, call "Correct"

Date: _____ Pilot: _____ Runs: _____

Evaluation Segment:	Glideslope and Localizer Tracking with Line-Up Correction	
Start Evaluation:	1,000 ft AGL, Final Approach Speed, Level	
End Evaluation:	50 feet AGL, Pre-Flare, Descending	
Evaluation Basis:	Evaluate the ability to accurately maneuver onto the final approach path and maintain nominal approach profile and speed down the Decision Height (when "Correct" is called). Evaluate the ability to maneuver aircraft into landing line-up from offset ILS approach guidance and establish satisfactory pre-flare landing conditions.	
Performance Standards	Target	Desired
Deviation from Approach Airspeed (kt) [AGL > DH]	0	±5
Deviation from Glideslope (deg) [AGL > DH]	0	±10
Deviation from Localizer (dofs) [AGL > DH]	0	±1.0

Evaluation Segment:	Precision Landing - Close-in	
Start Evaluation:	50 ft AGL, Pre-Flare, Descending	
End Evaluation:	Main Gear Touchdown (Nosewheel Touchdown, if not in TIFS)	
Evaluation Basis:	Evaluate handling qualities in landing for a high-gain task. For desired performance, the pilot should be able to precisely and positively control the aircraft touchdown and there should be no tendency to PIO or bubble in pitch and roll. There should also be no tendency to float in flare. There should be no geometry strikes.	
Performance Standards	Target	Desired
Longitudinal distance from threshold at touchdown (ft)	1250	1000-1500
Lateral offset from runway centerline at touchdown (ft)	0	±10
Sink Rate at touchdown (ft/sec)	<1	≤4
Maximum Bank Angle below 35 ft AGL (deg)	0	±5
Pilot-Induced Oscillations (PIO)	No PIO	Not Divergent
Geometry Strikes (tail, engine nacelle, wing tip)	No Strikes	No Strikes

4069

4069

15 Kt Crosswind Approach and Landing

4090

Flight Phase	MTE	Weather State	Failures
15B. Maneuver to Final Approach Fix	313, Complete Approach and Landing	30, 15 Kt Crosswind	0, No Failures

Loading:		7. MEC - Final Cruise condition					
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position		
0 Kt/ 15 Kt	Moderate/ None	0	Unlimited/ Unlimited	Dry, groomed	1/2 mi outside OM, at 1,500 feet AGL, on LOC.		
KEAS/M GW C.G. GEAR LEFT/TIFF	1,500 159 384.862 53.2 DOWN Auto	Vapp Vref Vg/a Vmin	159 154 159 125	PSCAS RSCAS AT HUD F/D Config	NORMAL NORMAL ON ON OFF Ref/H Cyclic		

Note: X-wind decreases linearly from 25 kt at 10000 ft AGL to 15 kt at field elevation.

Procedure—Evaluation Pilot (PF):

- Establish aircraft in steady level flight at the noted conditions, tracking the LOC for G/S intercept.
- Maintain Vapp.
- Track LOC to G/S intercept and capture G/S using HUD or PFD.
- Procedure A: Disconnect autothrottles at 50 ft AGL.
- Procedure A: At 50 ft AGL, initiate a decrab and flare maneuver to touchdown at the target point. Max bank angle 5 deg.
- Procedure B: At 200 ft AGL, initiate a forward slip (max bank angle 5 deg).
- Procedure B: Disconnect autothrottles at 50 ft AGL.
- Procedure B: Execute a flare to touchdown at the target point on the runway. Max bank angle is 5 deg.
- After touchdown, retard throttles to idle and lower the nosewheel to the runway.

Procedure—Test Engineer / Pilot Not Flying (PNF):

- Confirm initial conditions.
- During approach, PNF monitors any performance indicators that will not be automatically reported at the end of the run.

Date: _____ **Pilot:** _____ **Runs:** _____

Evaluation Segment:		Glideslope and Localizer Intercept	
Start Evaluation:		1,500 ft, Final Approach Speed, Level	
End Evaluation:		200 ft AGL, Landing Speed, Descending	
Performance Standards	Target	Desired	Adequate
Deviation from Final Approach Airspeed (kt)	0	±5	±10
Deviation from Glideslope (dots)	0	±0.5	±1.0
Deviation from Localizer (dots)	0	±0.5	±1.0
Evaluation Segment:	Precision Landing	Long CHR	Lat / Dir CHR
Start Evaluation:	200 ft AGL, Landing Speed, Descending		
End Evaluation:	Nosewheel touchdown		

Evaluation Basis: Evaluate the ability to accurately maneuver onto the final approach path and maintain nominal approach profile and speed at low altitudes. Attained trimmed flight before the middle marker (approximately 0.5 nm from the end of the runway).

Performance Standards		Target	
Deviation from Approach Airspeed (kt)		0	
Deviation from Runway Heading at touchdown (deg)		0	
Longitudinal distance from threshold at touchdown (ft)		1250	
Lateral offset from runway centerline at touchdown (ft)		0	
Sink Rate at touchdown (ft/sec)		<1	
Maximum Bank Angle below 50 ft AGL (deg)		±4	
Pilot-Induced Oscillations (PIO)		±5	
Geometry Strikes (tail, engine nacelle, wing tip)		No PIO No Strikes	

4090

4090

4093 25 Kt Crosswind Approach and Landing

Flight Phase	MTE	Weather State	Failures	
15B. Maneuver to Final Approach Fix	313, Complete Approach and Landing	30A. 25 Kt Crosswind	0. No Failures	
Loading: 7. MEC - Final Cruise condition				
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface
0 Kt/ 25 Kt	Moderate/ None	0	Unlimited/ Unlimited	Dry, groomed
KEAS/M GW C.G. GEAR LEFT/TEFF	ALT 1.500 159 384.862 53.2 DOWN Auto	Vapp Vref Vg/a Vmin	PSCAS 159 RSCAS 159 AT 125 HUD F/D Config	NORMAL NORMAL ON ON OFF <i>Ref/H Cyclic 3</i>

Flight Phase	MTE	Weather State	Failures	
15B. Maneuver to Final Approach Fix	313, Complete Approach and Landing	30A. 25 Kt Crosswind	0. No Failures	
Loading: 7. MEC - Final Cruise condition				
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface
0 Kt/ 25 Kt	Moderate/ None	0	Unlimited/ Unlimited	Dry, groomed
KEAS/M GW C.G. GEAR LEFT/TEFF	ALT 1.500 159 384.862 53.2 DOWN Auto	Vapp Vref Vg/a Vmin	PSCAS 159 RSCAS 159 AT 125 HUD F/D Config	NORMAL NORMAL ON ON OFF <i>Ref/H Cyclic 3</i>

Note: X-wind decreases linearly from 35 kt at 10000 ft AGL to 25 kt at field elevation.

Procedure—Evaluation Pilot (PF):

- Establish aircraft in steady level flight at the noted conditions, tracking the LOC for G/S intercept.
 - Maintain Vapp.
 - Track LOC to G/S intercept and capture G/S using HUD or PFD.
 - Procedure A: Disconnect autothrottles at 50 ft AGL.
 - Procedure A: At 50 ft AGL, initiate a decrab and flare maneuver to touchdown at the target point. Max bank angle 5 deg.
 - Procedure B: At 200 ft AGL, initiate a forward slip (max bank angle 5 deg).
 - Procedure B: Disconnect autothrottles at 50 ft AGL.
 - Procedure B: Execute a flare to touchdown at the target point on the runway. Max bank angle is 5 deg.
 - After touchdown, retard throttles to idle and lower the nosewheel to the runway.
- Procedure—Test Engineer / Pilot Not Flying (PNF):**
- Confirm initial conditions.
 - During approach, PNF monitors any performance indicators that will not be automatically reported at the end of the run.

Date: _____ Pilot: _____ Runs: _____

Flight Phase	MTE	Weather State	Failures	
15B. Maneuver to Final Approach Fix	313, Complete Approach and Landing	30A. 25 Kt Crosswind	0. No Failures	
Loading: 7. MEC - Final Cruise condition				
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface
0 Kt/ 25 Kt	Moderate/ None	0	Unlimited/ Unlimited	Dry, groomed

Flight Phase	MTE	Weather State	Failures	
15B. Maneuver to Final Approach Fix	313, Complete Approach and Landing	30A. 25 Kt Crosswind	0. No Failures	
Loading: 7. MEC - Final Cruise condition				
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface
0 Kt/ 25 Kt	Moderate/ None	0	Unlimited/ Unlimited	Dry, groomed

Evaluation Segment: Glideslope and Localizer Intercept

Start Evaluation: 1,500 ft, Final Approach Speed, Level 200 ft AGL, Landing Speed, Descending

End Evaluation: _____

Evaluation Basis: Evaluate the ability to accurately maneuver onto the final approach path and maintain nominal approach profile and speed at low altitudes. Attained trimmed flight before the middle marker (approximately 0.5 nm from the end of the runway).

Performance Standards	Target	Desired	Adequate
Deviation from Final Approach Airspeed (kt)	0	±5	±10
Deviation from Glideslope (dots)	0	±0.5	±1.0
Deviation from Localizer (dots)	0	±0.5	±1.0

Evaluation Segment: Precision Landing

Start Evaluation: 200 ft AGL, Landing Speed, Descending

End Evaluation: Nosewheel touchdown

Evaluation Basis: Evaluate handling qualities in landing. For desired performance, there should be no tendency to PIO or bubble in pitch or roll. There should also be no tendency to float or bounce after touchdown. There should be no geometry strikes on touchdown.

Performance Standards	Target	Desired	Adequate
Deviation from Approach Airspeed at 50 ft (kt)	0	±5	±10
Deviation from Runway Heading at touchdown (deg)	0	±3	±6
Longitudinal distance from threshold at touchdown (ft)	1250	1000-1500	750-2250
Lateral offset from runway centerline at touchdown (ft)	0	±10	±27
Sink Rate at touchdown (ft/sec)	<1	≤4	≤7
Maximum Bank Angle below 50 ft AGL (deg)	0	±5	±7
Pilot-Induced Oscillations (PIO):	No PIO	No PIO	Not Divergent
Geometry Strikes (tail, engine nacelle, wing tip)	No Strikes	No Strikes	No Strikes

4095 35 Kt Crosswind Approach and Landing

Flight Phase	MTE	Weather State	Failures	
15B. Maneuver to Final Approach Fix	313, Complete Approach and Landing	31.35 Kt Crosswind	0. No Failures	
Loading: 7. MEC - Final Cruise condition				
Head/Wind, kt	Turb/ Gusts	Approach Category	Ceiling/ Visibility	Rwy Surface
0 Kt/ 35 Kt	Moderate/ None	0	Unlimited/ Unlimited	Dry, groomed
ALT KEAS/M GW C.G. GEAR LEFT/TEFF	Vapp Vref Vg/a Vmin DOWN Auto	1.59 1.54 1.59 1.25 125	PSCAS RSCAS A/T HUD F/D Config	NORMAL NORMAL ON ON OFF Ref/H Cyclic 3

Note: X-wind decreases linearly from 45 kt at 10000 ft AGL to 35 kt at field elevation.

Procedure—Evaluation Pilot (PF):

1. Establish aircraft in steady level flight at the noted conditions, tracking the LOC for G/S intercept.
 2. Maintain Vapp.
 3. Track LOC to G/S intercept and capture G/S using HUD or PFD.
 4. Procedure A: Disconnect autothrottles at 50 ft AGL.
 5. Procedure A: At 50 ft AGL, initiate a decrab and flare maneuver to touchdown at the target point. Max bank angle 5 deg.
 6. Procedure B: At 200 ft AGL, initiate a forward slip (max bank angle 5 deg).
 7. Procedure B: Disconnect autothrottles at 50 ft AGL.
 8. Procedure B: Execute a flare to touchdown at the target point on the runway. Max bank angle is 5 deg.
 9. After touchdown, retard throttles to idle and lower the nosewheel to the runway.
- Procedure—Test Engineer / Pilot Not Flying (PNF):
1. Confirm initial conditions.
 2. During approach, PNF monitors any performance indicators that will not be automatically reported at the end of the run.

Date:

Pilot:

Runs:

Evaluation Segment:		Long CHR		Lat / Dir CHR	
Start Evaluation:		Glideslope and Localizer Intercept		1,500 ft, Final Approach Speed, Level	
End Evaluation:		200 ft AGL, Landing Speed, Descending			
Evaluation Basis: Evaluate the ability to accurately maneuver onto the final approach path and maintain nominal approach profile and speed at low altitudes. Attained trimmed flight before the middle marker (approximately 0.5 nm from the end of the runway).					
Performance Standards	Target	Desired	Actual	Adequate	
Deviation from Final Approach Airspeed (kt)	0	±5	±10		
Deviation from Glideslope (dots)	0	±0.5	±1.0		
Deviation from Localizer (dots)	0	±0.5	±1.0		
Evaluation Segment:	Precision Landing	Long CHR	Lat / Dir CHR		
Start Evaluation:		200 ft AGL, Landing Speed, Descending			
End Evaluation:		Nosewheel touchdown			
Evaluation Basis: Evaluate handling qualities in landing. For desired performance, there should be no tendency to PIO or bubble in pitch or roll. There should also be no tendency to float or bounce after touchdown. There should be no geometry strikes on touchdown.					
Performance Standards	Target	Desired	Actual	Adequate	
Deviation from Approach Airspeed at 50 ft (kt)	0	±5	±10		
Deviation from Runway Heading at touchdown (deg)	0	±3	±6		
Longitudinal distance from threshold at touchdown (ft)	1250	1000-1500	750-2250		
Lateral offset from runway centerline at touchdown (ft)	0	±10	±27		
Sink Rate at touchdown (ft/sec)	<1	≤4	≤7		
Maximum Bank Angle below 50 ft AGL (deg)	0	±5	±7		
Pilot-Induced Oscillations (PIO)	No PIO	No PIO	Not Divergent		
Geometry Strikes (tail, engine nacelle, wing tip)	No Strikes	No Strikes	No Strikes		

IAG Straight-In Approach & Landing - Cat 1

Flight Phase										MTE		Weather State		Failures		Runs:															
16B. Close-in Approach		313. Complete Approach and Landing		111. Light Turb. w/Gusts; Cat 1						Pilot:		Date:		Lat/Dir CHR																	
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position							Long CHR																			
0 Kt	Light/None	1	200/1/2 mile	Dry, grooved	1000 ft AGL on G/S and LOC							Lat/Dir CHR																			
Loading: 7. MEC - Final Cruise condition																															
KEAS/M GW C.G. GEAR LEFT/TEF	M 384.862 53.2 DOWN Auto	Vapp Vref Vg/a Vmin	1.59 1.54 1.59 1.25	PSCAS RSCAS A/T HUD	NORMAL NORMAL ON ON	Abnormals/Exceptions: None.							Lat/Dir CHR																		
Evaluation Segment: Glideslope and Localizer Tracking - Cat I																															
Start Evaluation:	1,000 ft AGL, Final Approach Speed												Lat/Dir CHR																		
End Evaluation:	200 ft AGL, upon Clouds Breakout												Lat/Dir CHR																		
Evaluation Basis: Evaluate the ability to accurately maintain nominal approach profile and speed down to the Decision Height (200 ft).																															
Performance Standards																															
Deviation from Deviation from Approach Airspeed (kt)	0												Lat/Dir CHR																		
[AGL > DH]	±5												Lat/Dir CHR																		
Deviation from Glideslope (dots) [AGL > DH]	0												Lat/Dir CHR																		
Deviation from Localizer (dots) [AGL > DH]	±0.5												Lat/Dir CHR																		
Evaluation Segment: Precision Landing - Cat I																															
Start Evaluation:	200 ft AGL, Upon Clouds Breakout												Lat/Dir CHR																		
End Evaluation:	Nosewheel Touchdown												Lat/Dir CHR																		
Evaluation Basis: Evaluate handling qualities in landing for a high-gain task. For desired performance, the pilot should be able to precisely and positively control the aircraft touchdown and there should be no tendency to PIO or bubble in pitch and roll. There should also be no tendency to float in flare. There should be no geometry strikes.																															
Performance Standards																															
Longitudinal distance from threshold at touchdown (ft)	1250												Lat/Dir CHR																		
Lateral offset from runway centerline at touchdown (ft)	0												Lat/Dir CHR																		
Sink Rate at touchdown (ft/sec)	<1												Lat/Dir CHR																		
Maximum Bank Angle Below 35 ft AGL (deg)	≤7												Lat/Dir CHR																		
Pilot-Induced Oscillations (PIO)	±7												Lat/Dir CHR																		
Geometry Strikes (tail, engine nacelle, wing tip)	No Divergent												Lat/Dir CHR																		
No Strikes	No Strikes												Lat/Dir CHR																		

Procedure-Evaluation Pilot (PE):

- Establish aircraft in descending flight on noted conditions.

2. Track LOC and G/S using HUD, following raw ILS data.

3. Manually adjust throttles as required and execute a flare to touchdown at target point on the runway.

4. After touchdown, retard throttles to idle and lower the nosewheel to the runway.

Procedure-Test Engineer / Pilot Not Flying (PNF):

- Confirm initial conditions.
- Monitor any performance indicators that will not be automatically reported at the end of the run.

Stall at Idle Power**5010****Date:** _____**Pilot:** _____**Runs:** _____

Flight Phase				MTE		Weather State		Failures			
13A. Descent into Class B		400. Stall at Idle Power		1.1. Light Turb.		0. No Failures					
Airspace											
Loading:		7. MEC - Final Cruise condition									
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position		N/A				
0 Kt/ 0 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, groomed							

Flight Phase		MTE		Weather State		Failures		
13A. Descent into Class B		400. Stall at Idle Power		1.1. Light Turb.		0. No Failures		
Airspace								
Loading:		7. MEC - Final Cruise condition						
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position		N/A	
0 Kt/ 0 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, groomed				

Procedure-Evaluation Pilot (PE):

- Establish straight and level flight, and reduce power to idle.
- Allow airspeed to bleed off until the aircraft is stabilized in a 15 deg AOA descent due to AOA envelope protection.
- Using pitch inputs, establish and maintain a smooth deceleration of approximately 1 kt/sec.
- Decelerate to an airspeed which produces approximately 25 deg AOA (~ 113 kt) with full aft pitch input.
- Release stick input and monitor that envelope protection returns the aircraft to 15 deg AOA.
- Lower nose and add power until positive recovery is assured.
- Terminate maneuver when recovery is assured (AOA less than 13 deg and decreasing).

Procedure-Test Engineer / Pilot Not Flying (PNF):

- Confirm initial conditions.
- Monitor deceleration and call out deviations from the target rate.
- Call out "recover" when angle-of-attack reaches 25 deg (~ 113 kt).

Flight Phase		MTE		Weather State		Failures		
13A. Descent into Class B		400. Stall at Idle Power		1.1. Light Turb.		0. No Failures		
Airspace								
Loading:		7. MEC - Final Cruise condition						
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position		N/A	
0 Kt/ 0 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, groomed				

Flight Phase		MTE		Weather State		Failures		
13A. Descent into Class B		400. Stall at Idle Power		1.1. Light Turb.		0. No Failures		
Airspace								
Loading:		7. MEC - Final Cruise condition						
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position		N/A	
0 Kt/ 0 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, groomed				

Flight Phase		MTE		Weather State		Failures		
13A. Descent into Class B		400. Stall at Idle Power		1.1. Light Turb.		0. No Failures		
Airspace								
Loading:		7. MEC - Final Cruise condition						
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position		N/A	
0 Kt/ 0 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, groomed				

Flight Phase		MTE		Weather State		Failures		
13A. Descent into Class B		400. Stall at Idle Power		1.1. Light Turb.		0. No Failures		
Airspace								
Loading:		7. MEC - Final Cruise condition						
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position		N/A	
0 Kt/ 0 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, groomed				

Flight Phase		MTE		Weather State		Failures		
13A. Descent into Class B		400. Stall at Idle Power		1.1. Light Turb.		0. No Failures		
Airspace								
Loading:		7. MEC - Final Cruise condition						
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position		N/A	
0 Kt/ 0 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, groomed				

Flight Phase		MTE		Weather State		Failures		
13A. Descent into Class B		400. Stall at Idle Power		1.1. Light Turb.		0. No Failures		
Airspace								
Loading:		7. MEC - Final Cruise condition						
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position		N/A	
0 Kt/ 0 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, groomed				

Flight Phase		MTE		Weather State		Failures		
13A. Descent into Class B		400. Stall at Idle Power		1.1. Light Turb.		0. No Failures		
Airspace								
Loading:		7. MEC - Final Cruise condition						
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position		N/A	
0 Kt/ 0 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, groomed				

Flight Phase		MTE		Weather State		Failures		
13A. Descent into Class B		400. Stall at Idle Power		1.1. Light Turb.		0. No Failures		
Airspace								
Loading:		7. MEC - Final Cruise condition						
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position		N/A	
0 Kt/ 0 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, groomed				

Flight Phase		MTE		Weather State		Failures		
13A. Descent into Class B		400. Stall at Idle Power		1.1. Light Turb.		0. No Failures		
Airspace								
Loading:		7. MEC - Final Cruise condition						
Head/Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position		N/A	
0 Kt/ 0 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, groomed				

Flight Phase		MTE		Weather State		Failures	
13A. Descent into Class B		400. Stall at Idle Power		1.1. Light Turb.		0. No Failures	
Airspace							
Loading:		7. MEC - Final Cruise condition					
Head/Wind, kt	Turb/Gusts	Approach Category					

5070 Emergency Descent**Date:****Pilot:****Runs:**

Flight Phase			MTE		Weather State		Failures	
7A. Supersonic Cruise			411. Emergency Descent		1. Light Turb.		0. No Failures	
Loading: 11. MIF - Heavy, Fwd C.G. Limit								
Head, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position			
0 Kt	Light/None	0	Unlimited/Unlimited	Dry, grooved	N/A			
0 Kt	None							
ALT 55,400 KEAS/M GW 614,864 C.G. GEAR LEFT/TER	R/C M 2.4 47.2 UP Auto	0 PSCAS RSCAS A/T HUD F/D Config Ref/H Cyc 3	NORMAL NORMAL OFF ON OFF OFF	Abnormals/Exceptions: Engine Inlets intentionally unstarted during recovery.	Target		Desired	Adequate

Procedure-Evaluation Pilot (PF):

- Establish straight and level flight at noted airspeed on a cardinal heading.
- When cabin depressurization is detected, wait 17 seconds, then initiate emergency descent: throttles to idle, drag devices deployed, 45° bank angle. Do not exceed load factor and Vmo limits.
- Return to level flight at 15,000 ft.

Procedure-Test Engineer / Pilot Not Flying (PNF):

- Confirm initial conditions.
- Monitor descent profile and call envelope excursions.
- Call out altitudes every 5,000 ft.
- Call out altitude when passing through 16,000 ft.

Evaluation Segment:			Emergency Descent		Straight and level flight (cruise)		Long CHR		Lat/Dir CHR	
Start Evaluation:										
End Evaluation:										
Evaluation Basis:	Evaluate handling qualities during a rapid, maximum speed descent from cruise. Perform maneuver smoothly, with no tendency to oscillate or hunt for pitch attitude or speed throughout the maneuver.									
Normal Acceleration (g)							1		1.0±0.5	
Airspeed above Vmo (kt)							0		0	
25										

20-Aug-97 GH

5090 High-Speed Excursion during Descent (subsonic)

Flight Phase							MTE		Weather State		Failures				
13A.			221.		1.						0.				
Loading: 7.															
Headwind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface	Initial Position										
0 Kt	Light/None	0	Unlimited/Unlimited	Dry, grooved											
0 Kt	None														
ALT	20,000	KCAS	300	PSCAS	NORMAL	NORMAL									
KEAS/M	300	KCAS	EPR	Trim	RSCAS	A/T	OFF	ON							
GW	384.862					HUD									
C.G.	53.2		UP			F/D									
GEAR			Auto			Config									
LEFT/TEFF															

Procedure-Evaluation Pilot (PE):

- After establishing straight and level flight, pitch down to achieve a flightpath angle of -1.5 degrees.
- Allow airspeed to increase to Vmo.
- Monitor aircraft response as envelope protection increases flightpath angle to maintain Vmo.
- Manually lower nose to increase airspeed to Vmc.
- Release pitch input and monitor aircraft response (flight path should increase to stabilize at Vmo).
- Recover to level flight at 250 KCAS.

Procedure-Test Engineer / Pilot Not Flying (PNF):

- Confirm initial conditions.
- Monitor descent.
- Call out "Recover" when stabilized in climb at Vmo.

Runs: _____

Pilot: _____

Date: _____

5090

One Engine Out Takeoff

7035

Flight Phase		MTE		Weather State		Failures	
2A. Takeoff		103. One engine out takeoff		1.1 Light Turb.		60. Single Engine Failure	
Head/X Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface			
0 Kt/ 0 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, groomed			
ALT KEAS/M GW C.G. GEAR DOWN LEFT/TIFF	Field 0 Vlo 48.1 V2+10 Auto	V1 170 Vr 186 V2 200 215 Vmin 181	PSCAS NORMAL RSCAS NORMAL AT HUD ON TO speed Config Ref/H Cyclic 3				

Procedure-Evaluation Pilot (PFE):

- Set brakes.
- Advance throttles to takeoff EPR.
- Release the brakes and maintain centerline during ground roll. PNF will make airspeed call-outs and monitor engine performance.
- At rotation speed (V_r), initiate rotation to follow rotation rate pitch guidance indicators. Utilize HUD guidance to preclude tail strikes.
- At positive climb rate, call "gear up". Follow velocity vector guidance symbol to intercept and maintain speed and extended runway centerline.
- Terminate the maneuver at 6.0 DME and in stable climb at V2+10.

Procedure- Test Engineer / Pilot Not Flying (PNF):

- Confirm initial conditions.
- Make airspeed call outs at 100 knots, V₁, and V_r.
- Immediately after reaching V₁, call "Engine # Failed, continue takeoff".
- Move gear handle to gear-up position when requested by PF.
- Terminate the maneuver at 6.0 DME and in stable climb at V2+10.

Date: _____**Pilot:** _____**Runs:** _____

Flight Phase		MTE		Weather State		Failures	
2A. Takeoff		103. One engine out takeoff		1.1 Light Turb.		60. Single Engine Failure	
Head/X Wind, kt	Turb/Gusts	Approach Category	Ceiling/Visibility	Rwy Surface			
0 Kt/ 0 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, groomed			
ALT KEAS/M GW C.G. GEAR DOWN LEFT/TIFF	Field 0 Vlo 48.1 V2+10 Auto	V1 170 Vr 186 V2 200 215 Vmin 181	PSCAS NORMAL RSCAS NORMAL AT HUD ON TO speed Config Ref/H Cyclic 3				

Evaluation Segment:		Takeoff Roll, Rotation & Initial Climb Out - PLR		Long CHR		Lat/ Dir CHR	
Start Evaluation:		Stopped on Runway					
End Evaluation:		Just prior to second EPR cutback					
Evaluation Basis:		The pilot is to evaluate the ease of tracking the runway centerline with rudder pedals alone as the aircraft accelerates during the takeoff roll. The pilot is to evaluate the control of the rotation and capability to track the pitch rate guidance indicators, and the ability to follow velocity-vector guidance once airborne. No PIO is allowed. No geometry strikes are allowed.					
Performance Standards		Target		Desired		Adequate	
Runway Centerline Deviation, on ground (ft)		0		±10		±27	
Rotation Pitch Rate Control, on ground (deg)		generated		<±0.5° bracket 90% of time (+1.2 deg/s)		<±1° bracket 90% of time (+0.6 deg/s)	
Longitudinal velocity vector control, airborne (de)		generated		<±1° V-vector height 90% of time		<±2° V-vector height 90% of time	
Lateral velocity vector control, airborne (deg)		generated		<±1° V-vector width 90% of time		<±2° V-vector width 90% of time	
Bank Angle Control, airborne (deg)		0		±5		±10	
Runway Heading Deviation, airborne (deg)		0		±2		±4	

7036 One Engine Out Takeoff in Crosswind

Flight Phase	MTE		Weather State		Failures	
2A. Takeoff	100. Standard Acoustic Takeoff		33. 35 Kt Crosswind		60. Single Engine Failure	
Loading:	3. M13. Max Taxi Weight @ fwd C.G., full aft fuselage fuel, partial wing fuel, max payload					
Head/Wind, kt	Turb/ Gusts	Approach Category	Ceiling/ Visibility	Rwy Surface		
0 Kt/ 35 Kt	Light/ None	0	Unlimited/ Unlimited	Dry, groomed		
Initial Position						
End of runway, on centerline.						

ALT	Field	V1	170	PSCAS	NORMAL	Performance Standards
KEAS/M	0	V _r	186	RSCAS	NORMAL	Runway Centerline Deviation, on ground (ft)
GW	649.914	V _{lo}	200	A/T	OFF	0 +/-27
C.G.	48.1	V ₂	202	HUD	ON	<1 bracket 90% of time (+1.2 deg/s)
GEAR DOWN	V2+10	215	F/D	TO speed		
LEFT/TIFF	Auto	V _{min}	181	Config	R _{ef} H C _c c 3	

Procedure-Evaluation Pilot (PFE):

- Set brakes.
- Advance throttles to takeoff EPR.
- Release the brakes and maintain centerline during ground roll. PNF will make airspeed call-outs and monitor engine performance.
- At rotation speed (V_r), initiate rotation to follow rotation rate pitch guidance indicators. Utilize HUD guidance to preclude tail strikes.
- At positive climb rate, call "gear up". Follow velocity vector guidance symbol to intercept and maintain speed and extended runway centerline.
- Terminate the maneuver at 6.0 DME and in stable climb at V2+10.

Procedure-Test Engineer / Pilot Not Flying (PNF):

- Confirm initial conditions.
- Make airspeed call outs at 100 knots, V₁, and V_r.
- Immediately after reaching V₁, call "Engine # Failed, continue takeoff".
- Move gear handle to gear-up position when requested by PFE.
- Terminate the maneuver at 6.0 DME and in stable climb at V2+10.

Date: _____ Pilot: _____ Runs: _____

Evaluation Segment:	Takeoff Roll, Rotation & Initial Climb Out - PLR	Long CHR	Lat/ Dir CHR
Start Evaluation:	Stopped on Runway		
End Evaluation:	Just prior to second EPR cutback		
Evaluation Basis:	The pilot is to evaluate the ease of tracking the runway centerline with rudder pedals alone as the aircraft accelerates during the takeoff roll. The pilot is to evaluate the control of the rotation and capability to track the pitch rate guidance indicators, and the ability to follow velocity-vector guidance once airborne. No PIO is allowed. No geometry strikes are allowed.		

Performance Standards	Target	Desired	Adequate
Runway Centerline Deviation, on ground (ft)	0	+/-10	+/-27
Rotation Pitch Rate Control, on ground (deg)	generated	<1 bracket 90% of time (+0.6 deg/s)	
Longitudinal velocity vector control, airborne (de)	generated	<+1 V-vector height 90% of time	<+2 V-vector height 90% of time

Lateral velocity vector control, airborne (deg)	Target	Desired	Adequate
Bank Angle Control, airborne (deg)	generated	<+1 V-vector width 90% of time	<+2 V-vector width 90% of time
Runway Heading Deviation, airborne (deg)	0	+/-5	+/-10
	+2	+2	+4

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13. ABSTRACT (Maximum 200 words) This report contains a description of the test facilities and software utilized during a joint NASA/aerospace industry study of improved control laws and desired inceptor characteristics for a candidate supersonic transport aircraft design. Details concerning the characteristics of the simulation cockpit, image generator and display systems, and motion platform are described. Depictions of the various display formats are included. The test schedule, session log, and flight cards describing the maneuvers performed is included. A brief summary of highlights of the study is given. Modifications made to the industry-provided simulation model are described. This report is intended to serve as a reference document for industry researchers.			
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